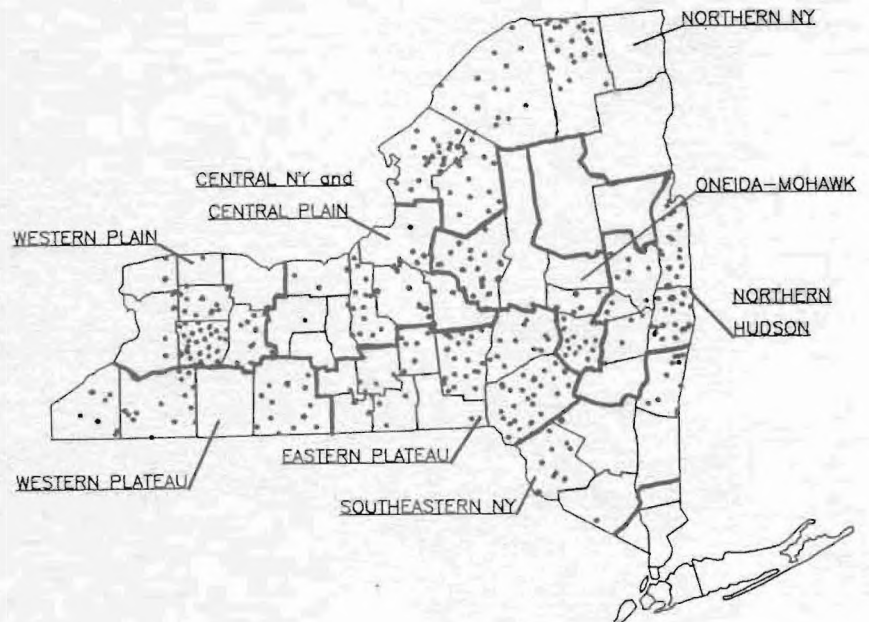


# DAIRY FARM MANAGEMENT

AUGUST 1993

A.E. Res. 93-11

## BUSINESS SUMMARY NEW YORK STATE 1992



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## **ABSTRACT**

This summary and analysis of 357 New York dairy farm businesses demonstrates the use of cash accounting and accrual adjustments to measure farm profitability, cash flow, financial performance, and costs of producing milk. Traditional methods of analyzing dairy farm businesses are combined with improved evaluation techniques to show the relationship between good management performance and financial success. These farms averaged 123 cows per farm and 18,789 pounds of milk sold per cow in 1992, which are above the average size and management level of all New York dairy farms. Net farm income excluding appreciation, which is the return to the operator's labor, management, capital, and other unpaid family labor, averaged \$45,274 per farm. The rate of return including appreciation to all capital invested in the farm business averaged 5.7 percent in 1992.



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## INTRODUCTION

Dairy farm business summary (DFBS) projects are an integral part of Cornell Cooperative Extension's agriculture educational program in New York State. The Department of Agricultural Economics of the New York State College of Agriculture and Life Sciences, and County Extension staff, cooperate in sponsoring DFBS projects. In 1992, about 420 dairy farmers participated. Business records submitted by dairy farmers from 41 counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

Cooperative Extension agents and specialists enroll the cooperators and collect the records. Each cooperator receives a detailed summary and analysis of his or her business. More than 95 percent of the agents and specialists are using a microcomputer in their offices and/or on the farm to process and return the individual farm business reports for immediate use. Regional reports are prepared by Cornell faculty and used by DFBS cooperators and other farmers to compare their farm with regional averages. The DFBS program helps farmers develop managerial skills and solve business management problems.

Records from the eight regions and 41 counties of the State have been combined and the total data set analyzed as a study of the effects of changes in price, technology, and management on dairy farm incomes (Figure 1, page 2). This study provides current farm business information for use by dairy farmers, Cooperative Extension staff, teachers, and others concerned with the New York dairy industry.

### Farms Included

Data from 357 specialized dairy farms are included in the main body of this report. These farms do NOT represent the "average" for all dairy farms in the State. Participation was on a voluntary basis, therefore, not all areas or types of operations were equally represented (Figure 1, page 2). The 357 specialized dairy farms represent a cross section of better than average commercial dairy farm owner-operators in the State. Dairy farm renters, dairy-cash crop farmers with crop sales exceeding 10 percent of milk sales, and part-time dairy operators have been excluded from the main body of this report. Dairy farm renters are summarized separately in the supplemental information section of the publication.

### Features

Accrual procedures have been used to provide the most accurate accounting of farm receipts and farm expenses for measuring farm profits. An explanation of these procedures is found on page 7. Four measures of farm profits are calculated on pages 10 through 12. The balance sheet, statement of owner equity, and cash flow statement are featured on pages 13 through 16.

Data on the costs of producing milk are included on pages 25-30. Separate farm business charts using data from freestall farms versus conventional stall dairy farms are on pages 53-56.

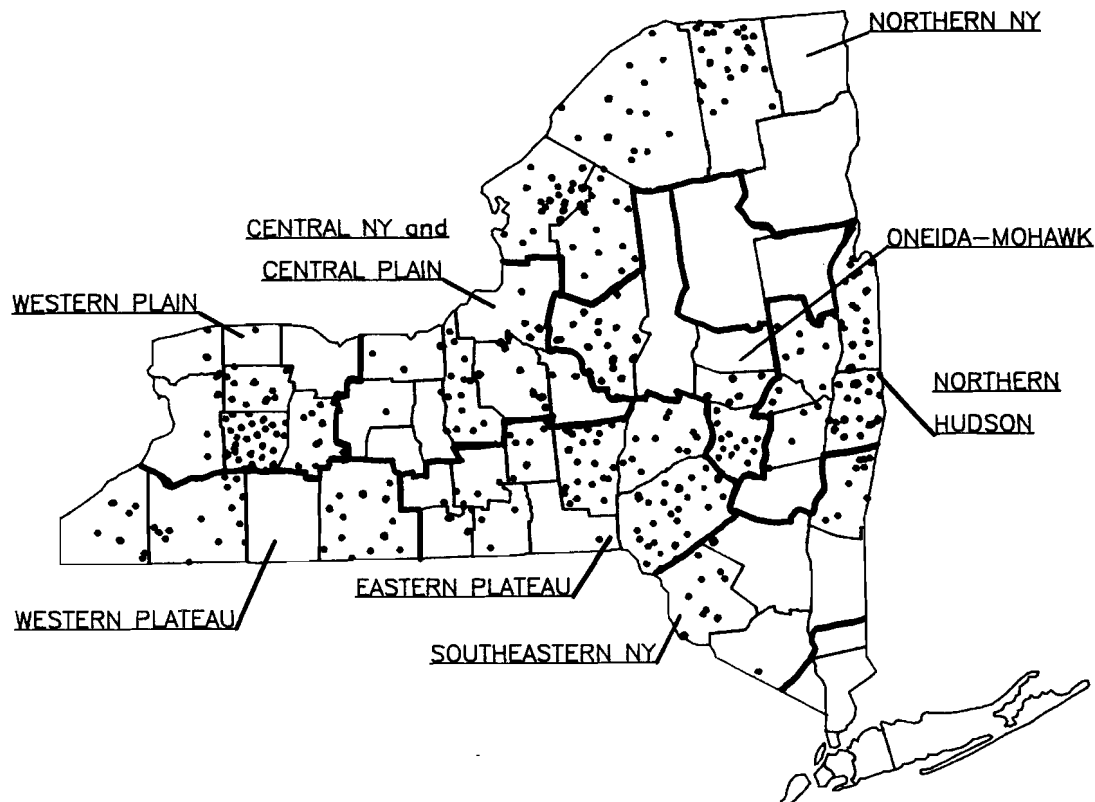
### Acknowledgements

The authors appreciate the outstanding assistance provided by the following staff members: Maria Cilveti-Reynolds and Cindy Farrell - wordprocessing, and Beverly Carcelli - proofreading and distribution.



Figure 1.

LOCATION OF THE 357 NEW YORK DAIRY FARMS  
IN THE 1992 DAIRY FARM BUSINESS SUMMARY



1992 Regional Summary Publications

<u>Region</u>	<u>Publications</u>	<u>Author(s)</u>
Western Plain Region	A.E. Ext. 93-5	Stuart F. Smith, Linda D. Putnam, George Allhusen, Jason Karszes & David Thorp
Northern New York	A.E. Ext. 93-6	Stuart F. Smith, Linda D. Putnam, Patricia A. Beyer, J. Russell Coombe, Lou Anne F. King, & George O. Yarnall
Eastern Plateau Region	A.E. Ext. 93-7	Robert A. Milligan, Linda D. Putnam, Carl A. Crispell, Gerald A. LeClar, & A. Edward Staehr
Central New York & Central Plain	A.E. Ext. 93-8	Wayne A. Knoblauch, Linda D. Putnam, George Allhusen, June C. Grabemeyer, James A. Hilson & Jacqueline M. Mierek
Northern Hudson Region	A.E. Ext. 93-9	Stuart F. Smith, Linda D. Putnam, Cathy S. Wickswat, John M. Thurgood
Southeastern New York	A.E. Ext. 93-10	Stuart F. Smith, Linda D. Putnam, Alan S. White, Gerald J. Skoda, Stephen E. Hadcock, & Larry R. Hulle
Oneida-Mohawk Region	A.E. Ext. 93-11	Eddy L. LaDue, Jacqueline M. Mierek, Charles Z. Radick & Linda D. Putnam
Western Plateau Region	A.E. Ext. 93-12	George L. Casler, Andrew N. Dufresne, Joan S. Petzen, Michael L. Stratton, & Linda D. Putnam

### MANAGING THROUGH A SEVERE MILK DECLINE

In 1991, average milk receipts per hundredweight of milk sold on New York DFBS farms fell 13 percent from the previous year. During 1991, the number of Northeast milk producers declined only three percent and New York cow numbers were down only 0.5 percent. The New York dairy farming industry survived the 1991 farm milk price crisis and is stronger and more viable today than it was in 1990. The following data show the changes and adjustments that have occurred on New York DFBS farms over the last four years.

Average data for all DFBS farm owners participating in any of the four years are shown in Table 1. These trends and changes are indicators of what has happened in our New York dairy farming industry since 1989:

- Herd size (cows per farm) is up 18 percent from 1989 and 15 percent since 1990.
- Milk sold per cow increased nine percent in four years and four percent between 1991 and 1992.
- Milk sold per worker is up 18 percent since 1989 and eight percent since 1991.
- Operating costs of producing milk increased 10 percent and total milk production costs increased five percent from 1989 to 1990. Since 1990 operating costs have declined six percent and total costs of producing milk are down nearly eight percent per hundredweight of milk sold.
- Farm profitability peaked in 1989, fell to a record low in 1991 and recovered close to 1990 levels in 1992.
- The average debt to asset ratio has increased 12.5 percent and debt per cow is up 17 percent since 1989.

Average data for the same 198 dairy farms that participated in DFBS for all four years are shown in Table 2. These data show the average annual changes and adjustments that were made by more than 200 dairy farm managers as they tried to keep their farm businesses profitable and competitive through a period of severe milk price decline. Here is a summary of the changes and the results:

1. The owner/managers on these 198 dairy farms increased average herd size (cows per farm) 16 percent but used only 10 percent more tillable land and nine percent additional labor.
2. They increased milk sold per cow seven percent to 18,934 lbs. and increased milk output per worker 14 percent to 667,894 pounds.
3. They cut purchased feed and crop expenses per hundredweight of milk sold nine percent, interest paid fell 16 percent and they held the line on labor expenses per hundredweight of milk sold over the last three years.
4. Annual increases in farm capital per cow and farm debt per cow have declined.
5. Average net farm income, without appreciation, increased 72 percent from 1991 to 1992 after declining 48 percent between 1989 and 1991. Average 1992 farm profits were nearly as high as in 1990 when milk prices were \$1.35 per hundredweight higher.

Table 1. COMPARISON OF FARM BUSINESS SUMMARY DATA  
New York Dairy Farms, 1989 - 1992

Selected Factors	1989	1990	1991	1992
Number of farms	409	395	407	357
Milk receipts per cwt. milk	\$14.53	\$14.93	\$12.95	\$13.58
<u>Size of Business</u>				
Average number of cows	104	107	111	123
Average number of heifers	83	87	92	96
Milk sold, cwt.	17,975	19,005	20,060	23,130
Worker equivalent	3.30	3.37	3.38	3.60
Total tillable acres	316	325	330	346
<u>Rates of Production</u>				
Milk sold per cow, lbs.	17,259	17,720	18,027	18,789
Hay DM per acre, tons	2.6	2.7	2.4	2.8
Corn silage per acre, tons	13.4	14.4	13.7	14.5
<u>Labor Efficiency</u>				
Cows per worker	32	32	33	34
Milk sold per worker, lbs.	544,598	563,349	593,297	641,893
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	27%	28%	29%	28%
Dairy feed & crop expense per cwt. milk	\$4.92	\$5.21	\$4.67	\$4.70
Oper. cost of producing cwt. milk	\$10.46	\$11.11	\$10.35	\$10.43
Total cost of producing cwt. milk	\$14.74	\$15.50	\$14.55	\$14.32
Hired labor cost per cwt.	\$1.62	\$1.77	\$1.74	\$1.79
Interest paid per cwt.	\$1.06	\$1.05	\$1.07	\$0.88
Labor & machinery costs per cow	\$894	\$1,024	\$976	\$996
<u>Capital Efficiency</u>				
Farm capital per cow	\$6,407	\$6,556	\$6,688	\$6,587
Machinery & equipment per cow	\$1,154	\$1,233	\$1,267	\$1,203
Real estate per cow	\$2,977	\$2,977	\$3,063	\$3,015
Livestock investment per cow	\$1,368	\$1,437	\$1,455	\$1,475
Asset turnover ratio	0.48	0.48	0.43	0.47
<u>Profitability</u>				
Net farm income w/o apprec.	\$49,575	\$47,020	\$26,391	\$45,274
Net farm income w/apprec.	\$74,787	\$56,572	\$41,074	\$62,296
Labor & management income per operator/manager	\$18,004	\$14,328	\$-955	\$11,254
Rate return on:				
Equity capital w/apprec.	9.8%	4.8%	1.4%	5.0%
All capital w/apprec.	9.4%	6.0%	3.8%	5.7%
All capital w/o apprec.	5.6%	4.7%	1.8%	3.6%
<u>Financial Summary, End Year</u>				
Farm net worth	\$468,848	\$480,515	\$486,215	\$529,858
Change in net worth w/apprec.	\$45,260	\$18,390	\$12,169	\$29,287
Debt to asset ratio	0.32	0.34	0.36	0.36
Farm debt per cow	\$2,048	\$2,220	\$2,327	\$2,390

**Table 2. COMPARISON OF FARM BUSINESS SUMMARY DATA**  
**Same 198 New York Dairy Farms, 1989 - 1992**

Selected Factors	1989	1990	1991	1992
Milk receipts per cwt. milk	\$14.58	\$14.93	\$13.00	\$13.60
<u>Size of Business</u>				
Average number of cows	116	121	125	134
Average number of heifers	92	100	105	105
Milk sold, cwt.	20,506	21,682	23,048	25,450
Worker equivalent	3.50	3.61	3.68	3.81
Total tillable acres	323	347	351	356
<u>Rates of Production</u>				
Milk sold per cow, lbs.	17,663	17,983	18,389	18,934
Hay DM per acre, tons	2.7	2.8	2.6	2.8
Corn silage per acre, tons	13.4	14.5	14.0	15.1
<u>Labor Efficiency</u>				
Cows per worker	33	34	34	35
Milk sold per worker, lbs.	586,517	600,602	627,066	667,894
<u>Cost Control</u>				
Grain & concentrate purchased as % of milk sales	27%	28%	29%	28%
Dairy feed & crop expense per cwt. milk	\$4.92	\$5.17	\$4.71	\$4.68
Oper. cost of producing cwt. milk	\$10.30	\$11.10	\$10.21	\$10.45
Total cost of producing cwt. milk	\$14.32	\$15.25	\$14.25	\$14.22
Hired labor cost per cwt.	\$1.76	\$1.96	\$1.93	\$1.95
Interest paid per cwt.	\$1.03	\$1.02	\$1.05	\$0.86
Labor & machinery costs per cow	\$898	\$1,033	\$996	\$1,001
<u>Capital Efficiency</u>				
Farm capital per cow	\$6,196	\$6,449	\$6,656	\$6,555
Machinery & equipment per cow	\$1,134	\$1,209	\$1,268	\$1,222
Real estate per cow	\$2,782	\$2,911	\$2,997	\$2,980
Livestock investment per cow	\$1,337	\$1,405	\$1,439	\$1,434
Asset turnover ratio	0.51	0.49	0.45	0.48
<u>Profitability</u>				
Net farm income w/o apprec.	\$60,427	\$53,910	\$33,589	\$49,002
Net farm income w/apprec.	\$86,853	\$65,059	\$50,971	\$65,874
Labor & management income per operator/manager	\$24,927	\$17,499	\$2,463	\$12,396
Rate return on:				
Equity capital w/apprec.	11.7%	5.8%	2.8%	5.2%
All capital w/apprec.	10.6%	6.7%	4.7%	5.8%
All capital w/o apprec.	7.0%	5.3%	2.6%	3.9%
<u>Financial Summary, End Year</u>				
Farm net worth	\$502,335	\$526,531	\$540,337	\$575,832
Change in net worth w/apprec.	\$54,237	\$21,098	\$12,831	\$30,586
Debt to asset ratio	0.33	0.35	0.36	0.36
Farm debt per cow	\$2,022	\$2,335	\$2,349	\$2,353

## SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics and Resources Used

Recognition of important business characteristics and identification of the farm resources used is necessary for evaluating management performance. The combination of resources used and management practices employed is known as farm organization. Important farm business characteristics, the number of farms reporting these characteristics, and a listing of the average labor, land, and dairy cattle resources used in 1992 are presented in the following table.

Table 3. BUSINESS CHARACTERISTICS AND RESOURCES USED  
357 New York Dairy Farms, 1992

<u>No. Dairy Livestock</u>	<u>Cows</u>	<u>Heifers</u>	<u>Dairy Records</u>	<u>Number</u>	<u>Percent</u>
Beginning of Year	120	95	D.H.I.C.	261	73
End of Year	127	97	Owner Sampler	46	13
Average for Year	123	96	Other	20	6
			None	30	8
<u>Type of Business</u>	<u>Number</u>	<u>Percent</u>	<u>Labor Force</u>	<u>Average</u>	<u>Percent</u>
Sole Proprietorship	239	67	Operators	16.91 mo.	39
Partnership	99	28	Family paid	4.59 mo.	11
Corporation	19	5	Family unpaid	2.70 mo.	6
<u>Barn Type</u>	<u>Number</u>	<u>Percent</u>	Hired	<u>19.04 mo.</u>	<u>44</u>
Stanchion	185	52	Total Months	43.24 mo.	100
Freestall	143	40			
Combination	29	8			
<u>Milking System</u>	<u>Number</u>	<u>Percent</u>	<u>Operators</u> (total = 503)	<u>Average</u> 1.41	
Bucket & Carry	2	1	Age	44	
Dumping Station	9	2	Education	14 yrs.	
Pipeline	196	55	Estimated Value of		
Herringbone	127	36	Labor & Management	\$33,044	
Other Parlor	23	6			
<u>Milking Frequency</u>	<u>Number</u>	<u>Percent</u>	<u>Land Used</u>	<u>Farms Reporting</u> <u>Number</u>	<u>Average</u>
2x/day	280	79	Total acres:		
3x/day	61	17	Owned	357	366
Other	16	4	Rented	312	178
<u>Business Records</u>	<u>Number</u>	<u>Percent</u>	Tillable acres:		
Account Book	133	37	Owned	357	211
Agrifax (mail-in)	44	12	Rented	308	156
ELFAC	14	4	Total	357	346
On-Farm Computer	97	27			
Other	69	20			

There were 503 full-time operator equivalents on the 357 dairy farms for an average of 1.41 operators per farm. The operators averaged 44 years of age and 14 years of formal education. Additional data on the labor force is in Table 41.

All 357 farm businesses included in the regular dairy summary own farm real estate. Dairy farm renters are summarized separately later in this publication. However, 308 of the dairy farm owners rented an average of 156 acres of tillable land in 1992. The 357 farms averaged 346 total tillable acres per farm of which 135 acres were rented. Tables 20 and 26 contain additional information on land use and the dairy herd.

## Accounting Procedures

Accrual accounting adjustments are made to cash receipts and expenses and are used to measure annual receipts, expenses, and farm profitability more accurately. These procedures express the true value and cost of production for the year, regardless of whether cash was received or expended. Cash expenses and cash receipts are used when evaluating the cash flow position of the business.

The accrual accounting procedures consider changes in accounts payable and receivable, prepaid expenses, and changes in inventory of not only such items as crops and livestock, but also the inventory of production items such as fertilizer, seed, and fuel. In this manner, the total costs of production and the total value of production are obtained to provide an accurate representation of profitability in that year.

Accrual adjustments are complemented by accounting procedures used to separate changes in inventory into changes caused by price and those caused by quality or quantity changes. Separating price changes (appreciation) from physical changes in the farm inventory are important in determining farm profitability. Appreciation of farm assets are included in the return to farm capital, but excluded from the return to labor and management.

## Income Statement

The accrual income statement on the following page begins with an accounting of all farm business expenses. Farm business expenditures are grouped into seven major categories.

Hired labor includes gross wages plus the farm share of social security, worker's compensation insurance, employee health insurance, and other employee benefits paid by the farm employer.

Feed expenses are divided into purchased dairy grain and concentrate, purchased dairy roughage, and all feed purchased for nondairy livestock to allow more thorough analysis of dairy herd feeding costs. The costs of growing grain and roughage are not included in cash and accrual feed expenses.

Machinery costs represent all the operating costs of using power machinery on the farm. Ownership costs are excluded here but are included in the analysis of machinery costs.

Livestock expenses include the cost of supplies and services directly associated with the care and maintenance of the dairy herd, plus milk marketing costs. The purchase of replacement cattle is considered a herd maintenance expense while expansion livestock is not.

Crop expenses include the costs of fertilizer, lime, seeds, pesticides, and other crop supplies.

Real estate expenses are the direct costs associated with owning and maintaining farmland and buildings.

Other includes insurance, the farm share of utilities, interest paid on all farm indebtedness, and miscellaneous costs. Expansion livestock and machinery and building depreciation are nonoperating costs included in total expenses. Depreciation charges are based on income tax figures.

Cash and accrual farm expenses are summarized below. Total operating accrual expenses for the 357 farms averaged \$787 per day and 89 percent of total farm accrual expenses.

Table 4.

**CASH AND ACCRUAL FARM EXPENSES**  
**357 New York Dairy Farms, 1992**

Expense Item	Cash Paid +	Change in Inventory or Prepaid Expense +	Change in Accounts Payable -	Accrual Expenses	Percent
<u>Hired Labor</u>	\$ 41,605	\$-75«	\$ -22	\$ 41,508	14
<u>Feed</u>					
Dairy grain & conc.	87,987	-967	810	87,830	30
Dairy roughage	2,523	-75	105	2,553	1
Nondairy livestock	398	4	0	402	<1
<u>Machinery</u>					
Mach. hire, rent/lease	3,865	-16«	15	3,864	1
Machinery repairs/parts	17,683	-80	62	17,665	6
Auto expense (farm share)	936	0«	-5	931	<1
Fuel, oil & grease	7,930	78	15	8,023	3
<u>Livestock</u>					
Replacement livestock	4,856	0«	81	4,937	2
Breeding	4,141	-54	-4	4,083	1
Vet & medicine	8,142	-69	10	8,083	3
Milk marketing	14,505	0«	-10	14,495	5
Cattle lease/rent	458	0«	1	459	<1
Other livestock expense	15,888	-112	55	15,831	5
<u>Crops</u>					
Fertilizer & lime	8,326	61	274	8,661	3
Seeds & plants	4,990	-159	20	4,851	2
Spray, other crop exp.	4,951	-147	14	4,818	2
<u>Real Estate</u>					
Land/bldg./fence repair	5,501	5	37	5,543	2
Taxes	8,038	-39«	151	8,150	3
Rent & lease	5,428	5«	22	5,455	2
<u>Other</u>					
Insurance	5,099	-11«	26	5,114	2
Telephone (farm share)	779	0«	4	783	<1
Electricity (farm share)	7,923	3«	27	7,953	3
Interest paid	20,396	0«	0	20,396	7
Miscellaneous	4,684	-1	37	4,720	2
Total Operating	\$287,032	\$-1,649	\$1,725	\$287,108	100
Expansion livestock	\$6,465	-130«	11	6,345	
Machinery depreciation				16,836	
Building depreciation				10,777	
TOTAL ACCRUAL EXPENSES				\$321,066	

Cash paid is the actual amount of money paid out during the year and does not necessarily represent the cost of goods and services actually used.

Change in inventory represents feeds and supplies purchased this year but not used (negative change), and inputs purchased in a prior year and used this year (positive change). The purchased dairy grain and concentrate inventory increased \$967.

Prepaid expenses (noted by « in the above table) are advance payments made for services and noninventory items. For example, advance payments for rent decreased an average of \$5 per farm in 1992, and that decrease is added to cash rent to determine the correct 1992 accrual rental expense.

Changes in accounts payable reflect supplies/services used in this year's production but not paid for (positive change), and payments for production inputs used in a prior year (negative change).

Accrual expenses are cash expenses adjusted for changes in inventory, prepaid expenses, and accounts payable. They are the total costs of inputs actually used in this year's business.

Cash and accrual farm receipts are presented in the following table. Total cash receipts averaged \$353,401 per farm. Total accrual receipts averaged \$366,340 per farm. Accrual receipts were greater than cash receipts due to dairy herd growth and increases in crop inventory. Cow numbers increased an average of six head per farm and the homegrown feed inventory per farm increased \$5,447. Homegrown feed inventory per cow increased \$17 from beginning to end of year.

**Table 5. CASH AND ACCRUAL FARM RECEIPTS**  
357 New York Dairy Farms, 1992

Receipt Item	Cash Receipts	Change in + Inventory	Change in Accounts Receivable +	Accrual Receipts =	Percent
Milk sales	\$315,183		\$-1,033	\$314,150	86
Dairy cattle	20,015	\$8,339	-3	28,351	8
Dairy calves	5,382		1	5,383	1
Other livestock	1,250	78	-14	1,314	<1
Crops	3,393	5,447	17	8,857	2
Government receipts	3,570	10*	260	3,840	1
Custom machine work	654		-15	639	<1
Gas tax refund	262		-3	259	<1
Other	3,692		102	3,794	1
- Nonfarm noncash capital**		(-) 247		(-) 247	
Total	\$353,401	\$13,627	\$-688	\$366,340	100

\*Change in advanced government receipts.

\*\*Gifts or inheritances of cattle or crops included in inventory.

Cash receipts include the gross value of milk checks received during the year plus all other payments received for the sale of farm products, services, and government programs.

Accrual receipts represent the value of all farm commodities produced and services actually provided by the farmer during the year. Increases in livestock inventory caused by herd growth and/or quality, are included. Decreases in inventory caused by herd reduction are deducted. Changes in inventories of crops grown are accounted for. Changes in advanced government receipts are the amount government payments received for participating in a future year's program have changed from 1991 to 1992. An increase requires a negative adjustment to cash receipts and a decrease a positive adjustment. Changes in accounts receivable include the difference between the January milk check for this December's marketings and the previous January's check, and other delayed payments.

Nonfarm noncash capital are gifts and inheritances of cattle and crops received by the farm owner/operator, and included in inventory or used in the business during the year. They are deducted from growth in inventory and reduce accrual receipts because they came from outside the farm business. Gifts and inheritances of machinery and real estate are accounted for in Table 13.



### Profitability Analysis

Farm owners/operators contribute labor, management, and capital to their businesses. The best combination of these resources produces optimum profits. Farm profits can be measured as the return to all family resources or as the return to one or more individual resources such as labor and management.

Net farm income is the total combined return to the farm operator(s) and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, financing, and owning the farm business. This is not a measure of cash available from the year's business operation. Cash flow is evaluated later in this report.

Net farm income is computed with and without appreciation. Appreciation represents the change in farm inventory values caused by changes in prices during the year. Appreciation is a major factor contributing to changes in farm net worth and must be included in the profitability analysis.

Table 6. **NET FARM INCOME**  
357 New York Dairy Farms, 1992

Item	Average 357 Farms	Average Top 10% Farms*
Total accrual receipts	\$366,340	\$856,188
+ Appreciation: Livestock	3,161	1,534
Machinery	2,727	3,542
Real Estate	10,868	28,512
Other Stock/Cert.	266	1,511
= Total including appreciation	\$383,362	\$891,287
- Total accrual expenses	321,066	683,607
= Net Farm Income (with appreciation)	\$ 62,296	\$207,680
Net Farm Income (without appreciation)	\$ 45,274	\$172,581

\*Average of 36 farms with highest rates of return on all capital (without appreciation).

Return to operator(s') labor, management, and equity capital measures the total business profits for the farm operators. It is calculated by deducting a charge for unpaid family labor from net farm income. Operator(s') labor is not included in unpaid family labor. Return to operator(s') labor, management, and equity capital has been compiled with and without appreciation. Appreciation is considered an important part of the return to ownership of farm assets.

Table 7. **RETURN TO OPERATOR(S') LABOR, MANAGEMENT, AND EQUITY**  
357 New York Dairy Farms, 1992

Item	Average 357 Farms		Average Top 10% Farms	
	With Apprec.	Without Apprec.	With Apprec.	Without Apprec.
Net farm income	\$62,296	\$45,274	\$207,680	\$172,581
- Family labor unpaid @ \$1,350 per month	3,645	3,645	2,619	2,619
= Return to Operator(s') Labor, Management, & Equity	\$58,651	\$41,629	\$205,061	\$169,962

Labor and management income is the share of net farm income without appreciation returned to the operator(s') labor and management. Appreciation is not included as part of the return to labor and management. Labor and management income is determined by deducting the cost of using equity capital at a real interest rate of five percent, from the return to operator(s') labor, management, and equity capital excluding appreciation. The interest charge reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments.

Labor and management income per operator measures the return to one full-time operator's labor and management. A full-time operator provides 12 months of labor and management.

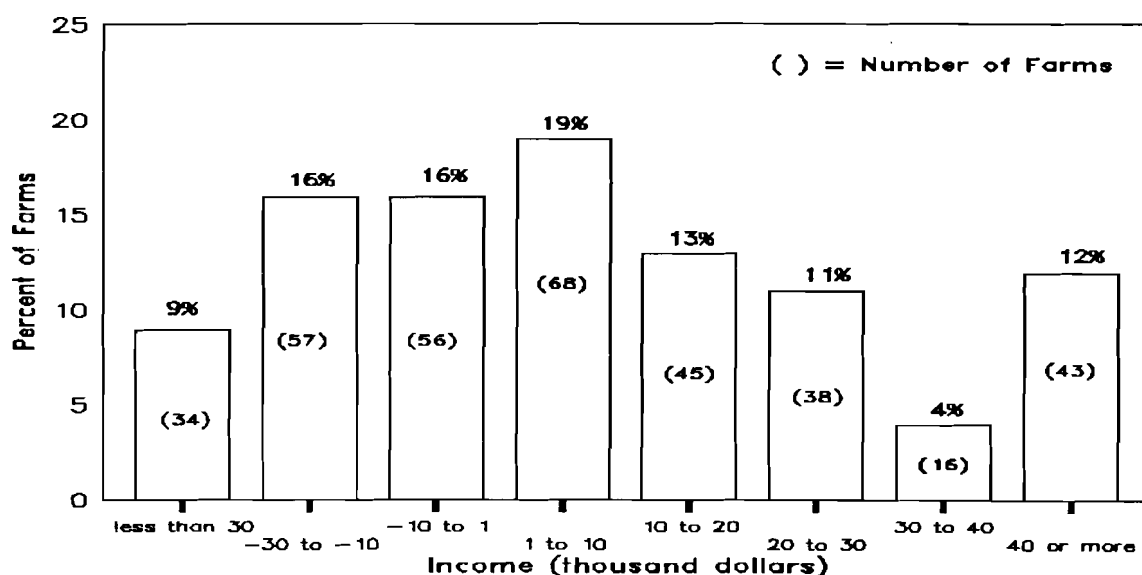
Table 8.

**LABOR AND MANAGEMENT INCOME**  
**357 New York Dairy Farms, 1992**

Item	Average 357 Farms		Average Top 10% Farms
Return to operator(s') labor, management, & equity without appreciation	\$41,629		\$169,962
- Real interest @ 5% on \$515,215 equity capital for average & \$794,834 for the top 10%	<u>25,761</u>		<u>39,742</u>
= Labor & Management Income (1.41 operators)	\$15,868	(1.46)	\$ 130,220
Labor & Management Income per Operator	\$11,254		\$89,192

Labor and management income per operator averaged \$11,254 on these 357 dairy farms in 1992. The range in labor and management income per operator was from less than -\$145,000 to more than \$725,000. Returns to labor and management were negative on 41 percent of the farms. Labor and management income per operator ranged from \$0 to \$19,999 on 32 percent of the farms while 27 percent showed labor and management incomes of \$20,000 or more per operator.

Chart 1. DISTRIBUTION OF LABOR & MANAGEMENT INCOMES PER OPERATOR  
357 New York Dairy Farms, 1992



Return on equity capital measures the net return remaining for the farmer's equity or owned capital after a charge has been made for the owner-operator's labor and management. The earnings or amount of net farm income allocated to labor and management is the opportunity cost or value of operator(s') labor and management estimated by the cooperators. Return on equity capital is calculated with and without appreciation. The rate of return on equity capital is determined by dividing the amount returned by the average farm net worth or equity capital. Return on total capital is calculated by adding interest paid to the return on equity capital and then dividing by average farm assets to calculate the rate of return on total capital.

Table 9. RETURN ON CAPITAL  
357 New York Dairy Farms, 1992

Item	Average 357 Farms	Average Top 10% Farms
Return to operators' labor, management, & equity capital with appreciation	\$ 58,651	\$205,061
- Value of operators' labor & management	<u>33,044</u>	<u>39,545</u>
= Return on equity capital with appreciation	\$ 25,607	\$165,516
+ Interest paid	<u>20,396</u>	<u>42,698</u>
= Return on total capital with appreciation	\$ 46,003	\$208,214
Return on equity capital without appreciation	\$ 8,585	\$130,417
Return on total capital without appreciation	\$ 28,981	\$173,115
Rate of return on average equity capital:		
with appreciation	5.0%	20.8%
without appreciation	1.7%	16.4%
Rate of return on average total capital:		
with appreciation	5.7%	14.7%
without appreciation	3.6%	12.2%

Return to all labor and management is another measure of profitability of a business that can be calculated. Table 10 shows that farms with higher return to all capital with appreciation also had significantly higher return per hour to all labor and management.

Table 10. RETURNS TO ALL LABOR AND MANAGEMENT BY RETURN  
TO ALL CAPITAL WITH APPRECIATION  
357 New York Dairy Farms, 1992

Item	Quartile by Return to All Capital w/Apprec.			
	Lowest 25%	3rd 25%	2nd 25%	Top 25%
Return to all capital (w/apprec.)	\$-16,603	\$10,266	\$35,020	\$156,643
Rate of return on all capital w/apprec.	-3.0%	1.9%	5.3%	10.7%
Total returns to all labor & management	\$2,841	\$20,146	\$35,040	\$187,396
Worker equivalent	2.83	2.65	2.81	6.12
Return per worker equiv.	\$1,004	\$7,602	\$12,470	\$30,620
Returns/hour (3,000 hours/ worker/yr.)	\$0.33	\$2.53	\$4.16	\$10.21

### Farm and Family Financial Status

Evaluating the financial status of the farm business and the farm family is an important part of business analysis. The first step is to inventory all the assets, determine all liabilities, and fill out the balance sheet. The second step is to analyze the completed balance sheet by evaluating the relationships between assets and liabilities and changes made during the year.

**Table 11. 1992 FARM BUSINESS AND NONFARM BALANCE SHEET**  
357 New York Dairy Farms, 1992

Farm Assets			Farm Liabilities & Net Worth		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 6,130	\$ 5,722	Accounts payable	\$ 10,130	\$11,867
Accounts rec.	24,055	23,369	Operating debt	11,590	13,892
Prepaid expenses	393	657	Short-term	4,407	3,701
Feed & supplies	62,574	69,539	Advanced Govt. Rec.	28	18
Total	\$93,152	\$99,287	Total	\$26,155	\$29,478
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$121,497	\$129,624	1-10 years	\$118,073	\$124,503
leased	214	175	Financial lease		
Heifers	52,494	55,855	(cattle/mach.)	2,375	1,999
Bulls/other lvstk.	1,458	1,548	Farm Credit stock	3,668	3,804
Mach./eq. owned	142,462	149,773	Total	\$124,114	\$130,307
Mach./eq. leased	2,161	1,824	<u>Long-Term</u>		
Farm Credit stock	3,668	3,804	Structured debt		
Other stock & cert.	9,819	10,677	≥10 years	\$137,115	\$143,306
Total	\$333,773	\$353,280	Financial lease		
<u>Long-Term</u>			(structures)	536	389
Land/buildings:			Total	\$137,651	\$143,696
owned	\$361,030	\$380,383	Total Farm Liab.	\$287,920	\$303,481
leased	536	389			
Total	\$361,566	\$380,772			
Total Farm Assets	\$788,491	\$833,339	FARM NET WORTH	\$500,571	\$529,858
			<u>Nonfarm Liabilities*</u>		
<u>Nonfarm Assets*</u>			<u>&amp; Net Worth</u>		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
Personal cash, chkg. & savings	\$ 6,159	\$ 6,408	Nonfarm Liab.	\$3,626	\$3,681
Cash value life ins.	8,280	9,353	NONFARM NET WORTH	\$68,750	\$72,720
Nonfarm real estate	30,334	31,132	<u>FARM &amp; NONFARM**</u>		
Auto (personal sh.)	3,370	3,487	Total Assets	\$860,868	\$909,740
Stocks & bonds	7,174	8,131	Total Liabilities	291,546	307,162
Household furn.	9,264	9,451			
All other	7,795	8,439	TOTAL FARM & NON-		
Total Nonfarm	\$72,377	\$76,401	FARM NET WORTH	\$569,322	\$602,578

\*Average of 213 farms completing the nonfarm balance sheet.

\*\*Sum of average farm values for 357 farms and nonfarm values for 213 farms.

Financial lease obligations are included in the balance sheet. The present values of all future payments are listed as liabilities since the farmer (lessee) is committed to make the payments. The present values are also listed as assets, representing the future value the item has to the business.

The farm balance sheet analysis includes financial and debt ratios and factors measuring levels of debt. Percent equity is calculated by dividing farm net worth by farm assets. Equity increases as the value of assets increase more than liabilities. The debt to asset ratio is compiled by dividing farm liabilities by farm assets. Low debt to asset ratios reflect strength in solvency and the potential capacity to borrow. The debt analysis ratios show how well the debt is structured and managed. Debt levels per unit of production include some old standards that are still useful if used with measures of cash flow and repayment ability.

Table 12. **FARM BALANCE SHEET ANALYSIS**  
357 New York Dairy Farms, 1992

Item	Average 357 Farms	Average Top 10% Farms		
<u>Farm Financial Ratios:</u>				
Percent equity	64%	58%		
Debt/asset ratio: total	0.36	0.42		
long-term	0.38	0.48		
inter. & current	0.35	0.38		
<u>Farm Debt Analysis:</u>				
Accts. payable as % of total debt	4%	2%		
Long-term liab. as % of total debt	47%	48%		
Current & intermediate liabilities as % of total debt	53%	52%		
<u>Farm Debt Levels:</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$2,390	\$1,438	\$2,328	\$1,822
Long-term debt	1,131	\$681	1,111	869
Intermediate & current debt	1,258	757	1,218	953

The farm inventory balance accounts for the changes in the values of major farm assets from the beginning to the end of the year.

Table 13. **FARM INVENTORY BALANCE**  
357 New York Dairy Farms, 1992

Item	Real Estate	Machinery/Equip.	Livestock
Value beg. of year	\$361,030	\$142,462	\$175,449
Purchases	\$25,112*	\$22,043	
+ nonfarm noncash transfer**	2,011	129	
- Lost capital	6,327		
- Net sales	1,533	751	
- Depreciation	<u>10,777</u>	<u>16,836</u>	
= Net investment	8,485	4,585	8,417
+ Appreciation	10,868	<u>2,727</u>	<u>3,161</u>
Value end of year	\$380,383	\$149,773	\$187,027

\*\$5,764 land and \$19,348 buildings and/or depreciable improvements.

\*\*Gifts and inheritances of property transferred into the farm business from outside.

The Statement of Owner Equity has two purposes. It allows (1) verification that the accrual income statement and market value balance sheet are interrelated and consistent (in accountants' terms, they reconcile) and (2) identification of the causes of change in equity that occurred on the farm during the year. The Statement of Owner Equity allows the farmer to determine to what degree the change in equity was caused by (1) earnings from the business, and nonfarm income, in excess of withdrawals being retained in the business (called retained earnings), (2) outside capital being invested in the business or farm capital being removed from the business (called contributed/withdrawn capital) and (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity).

Retained earnings are an excellent indicator of farm generated financial progress.

Table 14. STATEMENT OF OWNER EQUITY (RECONCILIATION)  
357 New York Dairy Farms, 1992

Item	Average 357 Farms	Average Top 10% Farms
Beginning of year farm net worth	\$500,571	\$728,115
Net farm income w/o apprec.	\$ 45,274	\$172,581
+Nonfarm cash income	+ 5,664	+ 4,339
-Personal withdrawals & family expenditures excluding non- farm borrowings	- 37,334	- 69,927
RETAINED EARNINGS	+\$ 13,604	+\$106,993
Nonfarm noncash transfers to farm	\$ 2,386	\$4,496
+Cash used in business from nonfarm capital	+ 2,651	+ 5,947
-Note/mortgage from farm real estate sold (nonfarm)	- 167	- 0
CONTRIBUTED/WITHDRAWN CAPITAL	+\$ 4,870	+\$10,433
Appreciation	\$ 17,022	\$35,099
-Lost capital	- 6,327	-16,448
CHANGE IN VALUATION EQUITY	+\$ 10,695	+\$ 18,651
IMBALANCE/ERROR	-\$ -115	-\$ 2,647
End of year farm net worth*	=\$529,858	=\$861,552
Change in net worth with apprec.	\$ 29,287	\$133,437
<u>Change in Net Worth</u>		
Without appreciation	\$ 12,265	\$ 98,338
With appreciation	\$ 29,287	\$133,437

\*May not add due to rounding.

### Cash Flow Summary and Analysis

Completing an annual cash flow statement is an important step in understanding the sources and uses of funds for the business. Understanding last year's cash flow is the first step toward planning and managing cash flow for the current and future years.

The annual cash flow statement is structured to show net cash provided by operating activities, investing activities, financing activities and from reserves. All cash inflows and outflows including beginning and end balances are included. Therefore the sum of net cash provided from all four activities should be zero. Any imbalance is the error from incorrect accounting of cash inflows/outflows.

Table 15. **ANNUAL CASH FLOW STATEMENT**  
357 New York Dairy Farms, 1992

Item	Average	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 353,401	
- Cash farm expenses	<u>287,032</u>	
= Net cash farm income		\$ 66,370
Nonfarm income	\$ 5,664	
- Personal withdrawals/family expenses including nonfarm debt payments	<u>37,833</u>	
+ Net cash nonfarm income		\$ <u>-32,169</u>
= Net Provided by Operating Activities		\$ 34,201
<u>Cash Flow From Investing Activities</u>		
Sale of assets: Machinery	\$ 751	
+ real estate	1,366	
+ other stock/cert.	<u>196</u>	
= Total asset sales		\$ 2,313
Capital purchases: expansion livestock	\$ 6,465	
+ machinery	22,043	
+ real estate	25,112	
+ other stock/cert.	<u>788</u>	
- Total invested in farm assets		\$ <u>54,408</u>
= Net Provided by Investment Activities		\$ -52,095
<u>Cash Flow From Financing Activities</u>		
Money borrowed (inter. & long-term)	\$ 52,620	
+ Money borrowed (short-term)	2,302	
+ Increase in operating debt	2,302	
+ Cash from nonfarm cap. used in business	2,651	
+ Money borrowed - nonfarm	<u>499</u>	
= Cash inflow from financing		\$ 60,374
Principal payments (inter. & long-term)	\$ 39,995	
+ Principal payments (short-term)	3,008	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		\$ <u>43,003</u>
= Net Provided by Financing Activities		\$ 17,371
<u>Cash Flow From Reserves</u>		
Beginning farm cash, checking & savings	\$ 6,130	
- Ending farm cash, checking & savings	<u>5,722</u>	
= Net Provided from Reserves		\$ 408
<u>Imbalance (error)</u>		\$ -115

Table 16.

**ANNUAL CASH FLOW BUDGETING DATA**  
**357 New York Dairy Farms, 1992**

Item	Average 357 Farms		Average Top 10% Farms	
	Total	Per Cow	Total	Per Cow
Average number of cows	123		258	
<u>Accrual Operating Receipts</u>				
Milk	\$314,150	\$2,552	\$718,670	\$2,788
Dairy cattle	28,351	230	76,469	297
Dairy calves	5,383	44	11,038	43
Other livestock	1,314	11	2,129	8
Crops	8,857	72	30,055	116
Miscellaneous receipts	<u>8,531</u>	<u>69</u>	<u>18,219</u>	<u>71</u>
Total	\$366,587	\$2,978	\$856,580	\$3,323
<u>Accrual Operating Expenses</u>				
Hired labor	\$ 41,508	\$ 337	\$112,332	\$ 436
Dairy grain & concentrate	87,830	713	192,280	746
Dairy roughage	2,553	21	7,921	31
Nondairy feed	402	3	946	3
Machinery hire/rent/lease	3,864	31	4,847	19
Machinery repairs/parts & auto	18,597	151	36,555	142
Fuel, oil & grease	8,023	65	13,709	53
Replacement livestock	4,937	40	9,800	38
Breeding	4,083	33	6,458	25
Vet & medicine	8,083	66	17,905	69
Milk marketing	14,495	118	25,983	101
Cattle lease	459	4	947	4
Other livestock expense	15,831	129	34,402	133
Fertilizer & lime	8,661	70	14,827	58
Seeds & plants	4,851	39	8,302	32
Spray/other crop expense	4,818	39	8,630	33
Land, building, fence repair	5,543	45	12,850	50
Taxes	8,150	66	11,288	44
Real estate rent/lease	5,455	44	12,306	48
Insurance	5,114	42	8,181	32
Utilities	8,736	71	15,309	59
Miscellaneous	<u>4,720</u>	<u>38</u>	<u>14,942</u>	<u>58</u>
Total Less Interest Paid	\$266,712	\$2,167	\$570,723	\$2,214
<u>Net Accrual Operating Income</u>				
(without interest paid)	\$99,875	\$811	\$285,857	\$1,109
- Change in livestock/crop inv.	13,627	111	65,616	255
- Change in accounts rec.	-688	-6	7,201	28
+ Change in feed/supply inv.	-1,649	-13	-6,215	-24
+ Change in accounts payable*	<u>1,725</u>	<u>14</u>	<u>-2,603</u>	<u>-10</u>
NET CASH FLOW	\$87,012	\$707	\$204,222	\$792
- Net personal withdrawals & family expenditures	<u>31,670</u>	<u>257</u>	<u>65,588</u>	<u>254</u>
Available for Farm Debt				
Payments & Investments	\$55,342	\$450	\$138,634	\$538
- Farm Debt Payments	<u>61,997</u>	<u>504</u>	<u>139,146</u>	<u>540</u>
Cash Available for Farm Investments	\$-6,655	\$-54	\$ -512	\$ -2

\*Excludes change in interest account payable.



### Repayment Analysis

The second step in cash flow planning is to compare and evaluate debt payments planned and made last year, and estimate the payments required in the current year. It is helpful to compare and evaluate a farm's repayment position by using debt payments per unit of production and receipt/debt payment ratios. The data below are for farms that completed summaries for both 1991 and 1992.

Table 17. **FARM DEBT PAYMENTS PLANNED**  
New York Dairy Farms, 1992

Debt Payments	Same 304 Dairy Farms			Average Top 10% Farms		
	1992 Payments		Planned 1993	1992 Payments		Planned 1993
	Planned	Made		Planned	Made	
Long-term	\$18,451	\$22,338	\$19,121	\$ 39,937	\$ 58,728	\$ 44,151
Intermediate-term	29,998	35,436	34,594	50,046	67,554	66,027
Short-term	2,641	3,691	2,964	2,159	3,500	2,370
Operating (net red.)	1,982	0	2,167	3,442	0	2,255
Accts. payable (net reduction)	<u>1,417</u>	<u>0</u>	<u>1,284</u>	<u>4,777</u>	<u>2,772</u>	<u>1,204</u>
Total	\$54,489	\$61,465	\$60,130	\$100,361	\$132,554	\$116,007
Per cow	\$432	\$488		\$361	\$477	
Per cwt. 1992 milk	\$2.31	\$2.60		\$1.78	\$2.36	
% of 1992 milk rec.	17%	19%		13%	17%	

The cash flow coverage ratio measures the ability of the farm business to meet its planned debt payments. The ratio shows the number of times the amount available for debt service in 1992 covered debt payments planned for 1992 (as of December 31, 1991).

Table 18. **CASH FLOW COVERAGE RATIO**  
New York Dairy Farms, 1992

Item	Same 304 Dairy Farms	Average Top 10% Farms
Cash farm receipts	\$359,785	\$837,452
- Cash farm expenses	291,724	667,083
+ Interest paid	20,475	46,334
- Net personal withdrawals from farm*	<u>31,681</u>	<u>66,373</u>
(A) = Amount Available for Debt Service	\$ 56,855	\$150,330
(B) = Debt Payments Planned for 1992	\$ 54,489	\$100,361
(A ÷ B) = Cash Flow Coverage Ratio for 1992	1.04	1.50

\*Personal withdrawals and family expenditures less nonfarm income and nonfarm money borrowed. If excluded, the cash flow coverage ratio will be incorrect.

A debt to asset ratio is a good measure of the current relationship between assets and liabilities, but not the business' ability to meet cash flow obligations. Even with a debt to asset ratio of less than 40 percent, 29 percent of the farms had a cash flow coverage ratio less than 1.0!

Table 19. **DEBT TO ASSET RATIO VS. CASH FLOW COVERAGE**  
304 New York Dairy Farms, 1992

Debt/Asset Ratio	Cash Flow Coverage Ratio (Farm & NonFarm)			
	<.5	.5 to .99	1 to 1.49	≥1.5
	percent of farms			
<40%	12.5	16.8	14.5	17.4
40 to 70%	6.3	18.1	6.9	3.6
70% & over	1.0	1.6	1.3	0.0

### Cropping Program Analysis

The cropping program is an important part of the dairy farm business that sometimes is overlooked and neglected. A complete evaluation of available land resources, how they are being used, how well crops are producing and what it costs to produce them, is required to evaluate alternative cropping and feed purchase choices.

Table 20. LAND RESOURCES AND CROP PRODUCTION  
357 New York Dairy Farms, 1992

Item	Average 357 Farms			Average Top 10% Farms		
	Owned	Rented	Total	Owned	Rented	Total
<u>Land</u>						
Tillable	211	135	346	345	222	567
Nontillable	49	13	62	53	22	75
Other nontillable	<u>106</u>	<u>8</u>	<u>114</u>	<u>148</u>	<u>20</u>	<u>168</u>
Total	366	156	522	546	264	810
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>	<u>Farms</u>	<u>Acres</u>	<u>Prod/Acre</u>
Hay crop	355	172	2.8 tn DM	36	245	3.2 tn DM
Corn silage	328	106	14.5 tn	33	223	15.8 tn
			4.7 tn DM			5.0 tn DM
Other forage	41	25	2.2 tn DM	2	11	1.7 tn DM
Total forage	357	272	3.4 tn DM	36	450	4.0 tn DM
Corn grain	149	96	85.3 bu	12	150	85.8 bu
Oats	52	32	62.5 bu	3	23	60.8 bu
Wheat	27	40	53.3 bu	2	103	49.6 bu
Other crops	49	48		6	150	
Tillable pasture	105	31		12	71	
Idle	134	30		11	35	

Crop acres and yields compiled for the average represent only the number of farms reporting each crop. All but two of the 357 farms produced hay or hay crop silage in 1992. Ninety-two percent produced corn silage, 42 percent grew and harvested corn grain, and 15 percent grew oats for grain. Yields of forage crops have been converted to tons of dry matter using dry matter coefficients reported by the farmers. Grain production has been converted to bushels of dry grain equivalent.

Crop acres represent plantings, therefore, unharvested acres are reflected in low yields per acre. Many acres of corn grain were unharvested at the end of 1992.

The following measures of crop management indicate how efficiently the land resource is being used and how well total forage requirements are being met.

Table 21. CROP MANAGEMENT FACTORS  
357 New York Dairy Farms, 1992

Item	Average 357 Farms	Average Top 10% Farms
Total tillable acres per cow	2.81	2.20
Total forage acres per cow	2.21	1.75
Harvested forage dry matter, tons per cow	7.60	6.98

In the eighth year of collecting information on individual crop production costs, 121 cooperators allocated direct crop related expenses to hay crop, corn, and other crop production. The data in Table 22 has been compiled to show the average crop related production expenses per acre and per unit for these crops. Note that labor and machinery costs have not been included. Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop. In Table 22, the total per tillable acre represents all 357 farms and the expenses for individual crops are for the 121 farms which submitted data.

Table 22. CROP RELATED ACCRUAL EXPENSES  
New York Dairy Farms, 1992

Expense	Average 357 Farms	Average 121 Farms Reporting Individual Crop Costs				
	Total Per Tillable	Hay Crop		All Corn	Corn Silage	Corn Grain
	Acre	Per Acre	Per Ton DM	Per Acre	Per Ton DM	Per Dry Shell Bu.
Fertilizer & lime	\$25.03	\$15.73	\$ 5.60	\$42.09	\$ 9.15	\$0.48
Seeds & plants	14.02	8.47	3.02	23.46	5.10	0.27
Spray & other crop expense	<u>13.92</u>	<u>4.44</u>	<u>1.58</u>	<u>30.39</u>	<u>6.61</u>	<u>0.35</u>
Total	\$52.97	\$28.64	\$10.20	\$95.94	\$20.86	\$1.10
Average of Top 10 Farms						
Average Top 10% Farms:		Reporting Individual Crop Costs				
Fertilizer & lime	\$26.15	\$13.10	\$ 3.81	\$ 40.44	\$ 8.47	\$0.42
Seeds & plants	14.64	7.36	2.14	21.93	4.60	0.23
Spray & other crop expense	<u>15.22</u>	<u>3.10</u>	<u>0.90</u>	<u>30.75</u>	<u>6.44</u>	<u>0.32</u>
Total	\$56.01	\$23.56	\$6.85	\$93.12	\$19.51	\$0.97

Most machinery costs are associated with crop production and should be analyzed with the crop enterprise. Total machinery expenses include the major fixed costs (interest and depreciation), as well as the accrual operating costs. Machinery costs have not been allocated to individual crops, but they are calculated per total tillable acre.

Table 23. ACCRUAL MACHINERY EXPENSES  
357 New York Dairy Farms, 1992

Machinery Expense Item	Average 357 Farms		Average Top 10% Farms	
	Total Expenses	Per Til. Acre	Total Expenses	Per Til. Acre
Fuel, oil & grease	\$ 8,022	\$ 23.18	\$ 13,709	\$ 24.18
Machinery repairs & parts	17,665	51.05	33,821	59.65
Machine hire, rent & lease	3,864	11.17	4,847	8.55
Auto expense (farm share)	932	2.69	2,734	4.82
Interest (5%)	7,306	21.12	10,974	19.36
Depreciation	<u>16,836</u>	<u>48.66</u>	<u>27,728</u>	<u>48.90</u>
Total	\$54,625	\$157.88	\$93,813	\$165.46

**Table 24. CROP RELATED ACCRUAL EXPENSES BY HAY CROP PRODUCTION PER ACRE**  
**121 New York Dairy Farms, 1992**

Item	Tons of Hay Crop Dry Matter Per Acre				
	<2.0	2.0-2.4	2.5-2.9	3.0-3.4	≥3.5
Hay crop, tons DM/acre	1.6	2.2	2.7	3.2	4.2
Farms reporting crop expense breakdowns	20	30	29	19	23
Average number hay crop acres for farms reporting	144	145	179	170	178
<u>Accrual Crop Expense</u>					
<u>Per Acre of Hay Crop:</u>					
Fertilizer & lime	\$12.12	\$12.80	\$15.90	\$18.75	\$18.81
Seeds & plants	7.41	7.71	9.48	9.03	8.31
Spray & other crop expense	<u>4.86</u>	<u>2.77</u>	<u>4.00</u>	<u>5.72</u>	<u>5.48</u>
Total	\$24.39	\$23.28	\$29.38	\$33.50	\$32.60
<u>Accrual Crop Expense</u>					
<u>Per Ton DM of Hay Crop:</u>					
Fertilizer & lime	\$ 7.50	\$ 5.72	\$ 5.84	\$ 5.90	\$ 4.62
Seeds & plants	4.58	3.44	3.48	2.84	2.04
Spray & other crop expense	<u>3.01</u>	<u>1.24</u>	<u>1.47</u>	<u>1.80</u>	<u>1.34</u>
Total	\$15.09	\$10.40	\$10.79	\$10.54	\$8.00

**Table 25. CROP RELATED ACCRUAL EXPENSES BY CORN PRODUCTION PER ACRE**  
**105 New York Dairy Farms, 1992**

Item	Tons Corn Silage/Acre			Dry Shell Bushels of Corn Grain Per Acre		
	0-12	13-17	≥18	0-87	88-112	≥113
Corn yield per acre	9.4	15.4	19.2	63	98	128
Farms reporting crop expense breakdowns	33	48	24	18	21	10
Average number corn acres for farms reporting	133	178	155	199	197	243
<u>Accrual Crop Exp./Acre of Corn</u>						
Fertilizer & lime	\$38.76	\$45.90	\$ 37.25	\$47.74	\$41.50	\$42.92
Seeds & plants	24.68	22.99	23.08	23.93	23.01	21.41
Spray & other crop expense	<u>31.35</u>	<u>30.17</u>	<u>29.74</u>	<u>35.05</u>	<u>29.39</u>	<u>31.42</u>
Total	\$94.79	\$99.06	\$90.07	\$106.72	\$93.90	\$95.75
<u>Accrual Crop Expense Per:*</u>						
	<u>Ton DM of Corn Silage</u>			<u>Dry Shell Bushel of Corn Grain</u>		
Fertilizer & lime	\$ 13.19	\$ 9.33	\$ 5.83	\$0.73	\$0.42	\$0.34
Seeds & plants	8.39	4.67	3.61	0.37	0.24	0.17
Spray & other crop expense	<u>10.67</u>	<u>6.13</u>	<u>4.66</u>	<u>0.54</u>	<u>0.30</u>	<u>0.25</u>
Total	\$32.25	\$20.13	\$14.10	\$1.64	\$0.96	\$0.76

\*Total corn expenses are allocated to corn silage and corn grain based on the proportion of acres in each crop.

From the above two tables, it is important to observe that as forage yields per acre increase, crop related expenses per acre also increase. For corn silage and corn grain, crop expense per ton of dry matter and per bushel are highest at the low levels of production. Hay crop expenses per ton of dry matter decrease substantially as yields exceed 2.0 tons per acre. The lower dry matter costs on the group of 23 farms with greater than 3.5 tons per acre can be attributed to significantly higher yields with controlled expenses per acre.

### Dairy Program Analysis

An analysis of the dairy enterprise can be the most important step in evaluating the strengths and weaknesses of the dairy farm business. Changes in dairy herd size and market values are identified in the table below. The change in inventory value without appreciation is attributed to physical changes in herd size and quality. This increase in inventory is included as an accrual farm receipt when calculating profitability with and without appreciation.

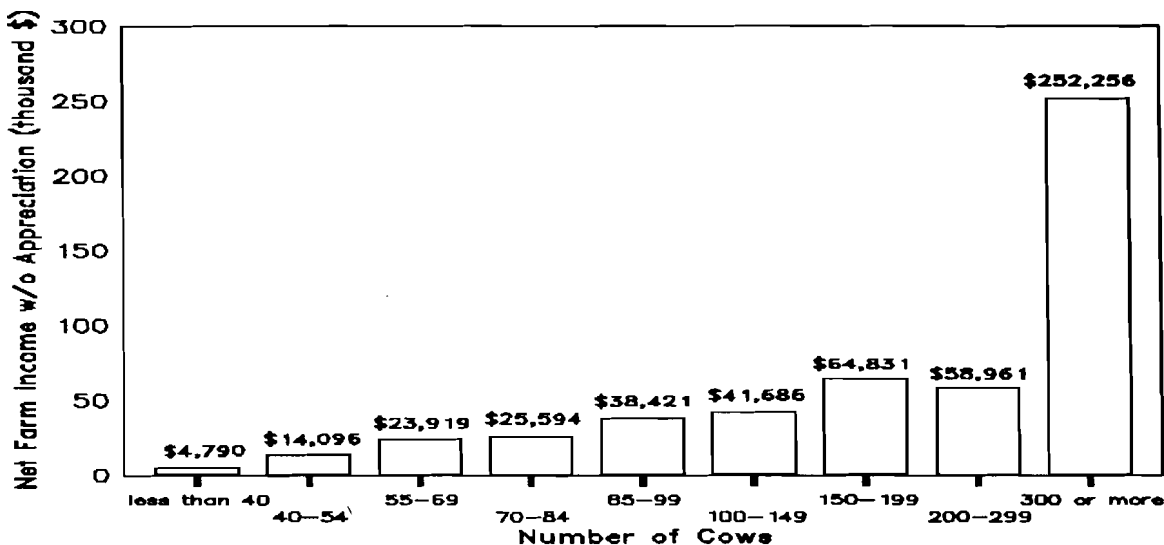
Table 26.

#### DAIRY HERD INVENTORY 357 New York Dairy Farms, 1992

	Dairy Cows		Heifers					
			Bred		Open		Calves	
Item	No.	Value	No.	Value	No.	Value	No.	Value
Beg. year (owned)	120	\$121,497	37	\$29,653	31	\$15,632	27	\$7,209
+ Change w/o apprec.		6,926		1,235		-283		461
+ Appreciation		<u>1,201</u>		<u>1,553</u>		<u>243</u>		<u>152</u>
End year (owned)	126	\$129,624	39	\$32,441	30	\$15,592	28	\$7,822
End incl. leased	127							
Average number	123		96	(all age groups)				
<u>Average Top 10% Farms:</u>								
Beg. year (owned)	237	\$234,608	83	\$60,273	49	\$23,557	41	\$9,848
+ Change w/o apprec.		30,017		7,380		548		3,448
+ Appreciation		<u>511</u>		<u>398</u>		<u>307</u>		<u>299</u>
End year (owned)	267	\$265,136	94	\$68,051	49	\$24,412	53	\$13,595
End incl. leased	270							
Average number	258		189	(all age groups)				

There is a strong relationship between farm size and farm income on well managed dairy farms. When data are sorted by herd size categories this relationship becomes apparent as shown in Chart 2. Net farm income increased \$247,466 while labor and management income per operator jumped \$102,933 as herd size increased from less than 40 to over 300 cows per farm.

Chart 2. NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE  
357 New York Dairy Farms, 1992



Total milk sold and milk sold per cow are extremely valuable measures of productivity on the dairy farm. These measures of milk output are based on pounds of milk marketed during the year.

**Table 27.** **MILK PRODUCTION**  
**357 New York Dairy Farms, 1992**

Item	Average 357 Farms	Average Top 10% Farms
Total milk sold, lbs.	2,313,008	5,229,105
Milk sold per cow, lbs.	18,789	20,288
Average milk plant test, percent butterfat	3.7%	3.6%

Farms with higher rates of production tend to have higher profits. In 1992, most of the farms that sold more than 19,000 pounds of milk per cow had above average profit margins.

**Table 28.** **MILK SOLD PER COW AND FARM INCOME MEASURES**  
**357 New York Dairy Farms, 1992**

Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income w/o Apprec.	Net Farm Income Per Cow	Labor & Management Income/Oper.
Under 13,000	22	83	\$27,122	\$327	\$ 1,534
13,000 to 14,999	28	76	13,183	173	- 3,288
15,000 to 15,999	20	76	7,064	93	-10,739
16,000 to 16,999	35	112	18,308	163	- 6,417
17,000 to 17,999	48	143	42,679	298	7,616
18,000 to 18,999	50	92	30,442	331	3,922
19,000 to 19,999	52	152	64,737	426	25,055
20,000 to 20,999	41	129	42,922	333	6,607
21,000 to 21,999	34	175	98,643	564	38,410
22,000 & over	27	150	87,577	584	32,675

The relationship between milk output per cow and net farm income on all 357 dairy farms is diagrammed in Charts 3 and 4 on page 24. Each spot on each scatter diagram represents one of the 357 farms.

Chart 3 and Table 28 show that as milk sold per cow increased from 10,000 pounds to 16,000 pounds, net farm income decreased. A number of farms with under 13,000 pounds of milk sold per cow have a high net farm income as a result of the production of high butterfat content milk. As milk output increased from 15,000 pounds to 22,000 pounds per cow, the range or variability in net farm income continued to grow and average net farm income increased.

The relationship between milk output per cow and net farm income per cow is presented in Chart 4 and Table 28. Profitability measured as net farm income per cow rather than per farm removes the influence of herd size and also shows a positive relationship with milk sold per cow. However, there is no upward trend in net farm income per cow until milk output exceeds 14,000 pounds per cow.

Chart 3. NET FARM INCOME & MILK PER COW  
357 New York Dairy Farms, 1992

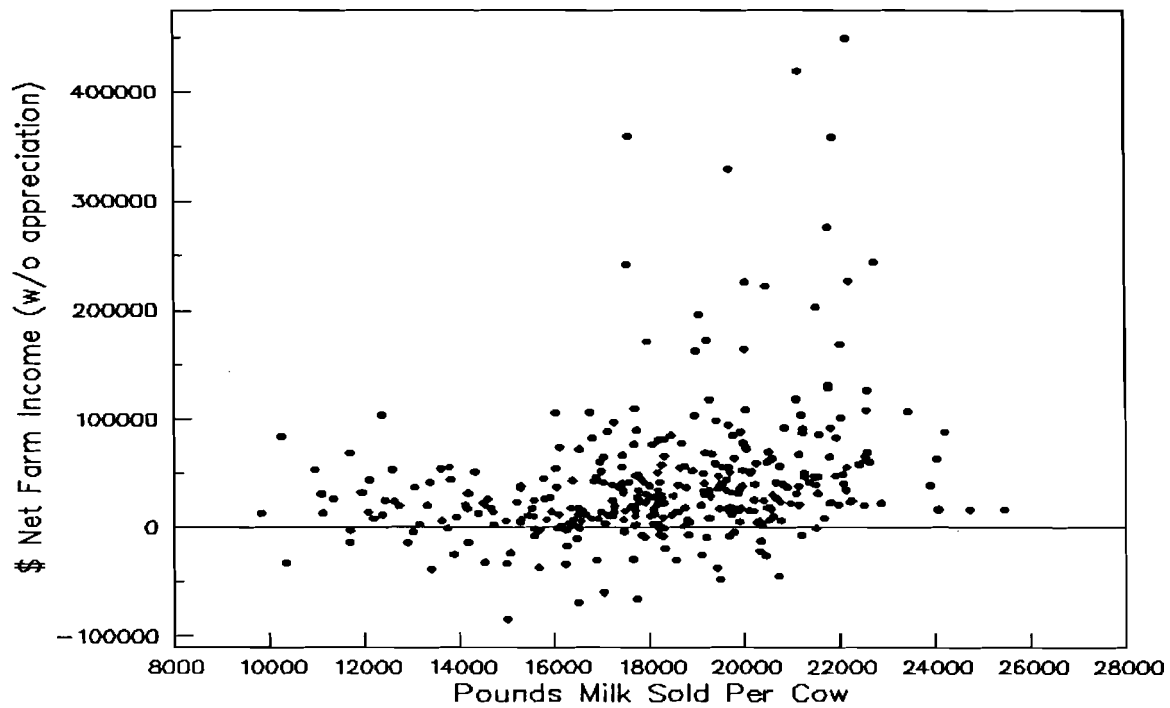
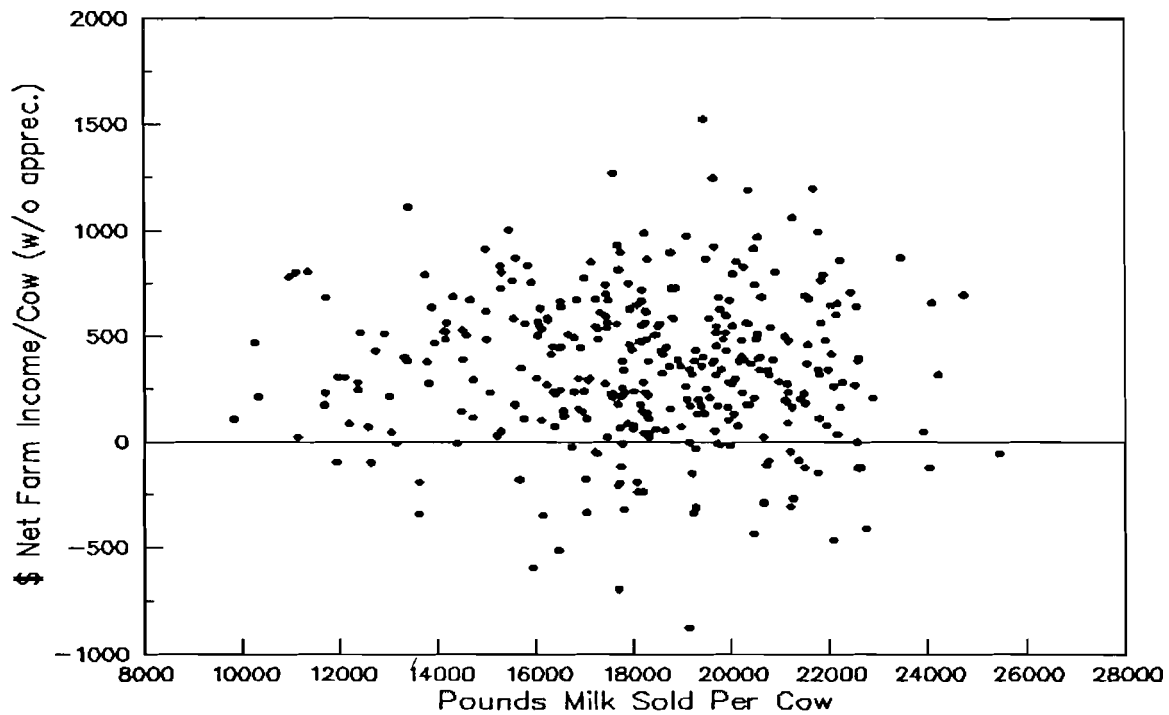


Chart 4. NET FARM INCOME PER COW & MILK PER COW  
357 New York Dairy Farms, 1992



### Costs of Producing Milk

The cost of producing milk has been compiled below using the whole farm method. The following steps are used in the calculations:

1. The cost of expansion livestock is added to total accrual operating expenses to offset any related inventory increase included in accrual receipts.
2. Accrual milk sales are deducted from total accrual receipts to get total accrual nonmilk receipts which are used to represent total nonmilk operating costs.
3. Total accrual nonmilk receipts are subtracted from total accrual operating expenses including expansion livestock to calculate the operating costs of producing milk.
4. Machinery depreciation, building depreciation, and the value of family labor unpaid are added to operating costs to determine the total costs of producing milk excluding operator's resources.
5. The opportunity costs of equity capital, operator's labor and operator's management are added to all other costs to obtain the total costs of producing milk. This cost includes all the operating, depreciation, and imputed costs of producing milk.

**Table 29. COST OF PRODUCING MILK WHOLE FARM METHOD CALCULATIONS**  
357 New York Dairy Farms, 1992

<u>Item</u>	<u>Average 357 Farms</u>	<u>Average Top 10% Farms</u>
Total Accrual Oper. Expenses	\$287,108	\$613,418
Expansion Livestock, Accrual	<u>+6,345</u>	<u>+16,761</u>
1. Total Accrual Oper. Expenses, Incl. Expansion Livestock	\$293,453	\$630,179
Total Accrual Receipts	\$366,340	\$856,188
Milk Sales, Accrual	<u>-314,150</u>	<u>-718,670</u>
2. Total Accrual Nonmilk Receipts	<u>-52,190</u>	<u>-137,518</u>
3. Oper. Costs of Producing Milk	\$241,263	\$492,661
Cwt. of Milk Sold	÷23,130.1	÷52,291.1
Operating Costs/Cwt.	= \$10.43	= \$9.42
Machinery Depreciation	+16,836	+27,728
Building Depreciation	+10,777	+25,700
Family Labor Unpaid (\$1,350/month)	<u>+3,645</u>	<u>+2,619</u>
4. Total Costs of Producing Milk Excl. Operator's Resources	\$272,521	\$548,708
Cwt. of Milk Sold	÷23,130.1	÷52,291.1
Total Costs Excluding Operators Resources/Cwt.	= \$11.78	= \$10.49
Real Interest on Equity Cap.	+25,761	+39,742
Value of Oper. Labor & Mgmt.	<u>+33,044</u>	<u>+39,545</u>
5. Total Costs of Producing Milk	\$331,326	\$627,995
Cwt. Milk Sold	÷23,130.1	÷52,291.1
Total Costs/Cwt.	= \$14.32	= \$12.01



Costs of producing milk per hundredweight are presented for eight expenditure categories in Table 30. The whole farm method assumption that accrual nonmilk receipts represent nonmilk operating costs is used in computing net costs. A \$5,447 average increase in crop inventories per farm, (\$0.24 per cwt. of milk), is included in crop sales.

Table 30. ITEMIZED COSTS OF PRODUCING MILK PER HUNDREDWEIGHT  
BASED ON WHOLE FARM DATA  
357 New York Dairy Farms, 1992

Item	Average 357 Farms	Average Top 10% Farms
Dairy grain and concentrate	\$3.80	\$3.68
Total feed expense	\$3.92	\$3.85
Crop expense	0.79	0.61
- Crop sales and government receipts*	<u>-0.55</u>	<u>-0.70</u>
Net Feed and Crop Expense	\$4.16	\$3.76
Hired labor	1.79	2.15
Operator's and family labor	<u>1.59</u>	<u>0.81</u>
Total Labor Expense	\$3.38	\$2.96
Machine repairs, fuel and hire	1.32	1.05
Machinery depreciation	0.73	0.53
- Gas tax refunds and custom work	<u>-0.04</u>	<u>-0.03</u>
Net machinery expense	\$2.01	\$1.55
Replacement and expansion cattle purch.	0.49	0.51
- Sales and inventory growth	<u>-1.50</u>	<u>-1.71</u>
Net Cattle Purchases	\$-1.01	\$-1.20
Milk marketing costs	0.63	0.50
All other livestock exp. excl. purch.	<u>1.23</u>	<u>1.14</u>
Net livestock expense	\$1.86	\$1.64
Real estate repairs, rent and taxes	0.83	0.70
Building depreciation	<u>0.46</u>	<u>.49</u>
Total real estate expense	\$1.29	\$1.19
Interest paid	0.88	0.82
Interest on equity	<u>1.11</u>	<u>0.76</u>
Total Interest Expense	\$1.99	\$1.58
Other operating and misc. expenses	0.80	0.73
- Miscellaneous income	<u>-0.16</u>	<u>- 0.20</u>
Net miscellaneous expenses	\$ 0.64	\$ 0.53
Total Cost of Producing Milk	\$14.32	\$12.01
Total Cost Without Costs of Operator's Resources**	\$11.78	\$10.49
Total Operating Costs	\$10.43	\$ 9.42

\* Non-crop related government payments may produce irregular results.

\*\* The costs of operator's resources are the opportunity costs of the operator's labor, management, and equity capital.

The three measures of accrual costs of producing milk per cow and per hundredweight are compared with accrual receipts from milk sales in Table 31.

**Table 31. ACCRUAL RECEIPTS FROM DAIRY AND COST OF PRODUCING MILK**  
357 New York Dairy Farms, 1992

Item	Average 357 Farms			Average Top 10% Farms		
	Total	Per Cow	Per Cwt.	Total	Per Cow	Per Cwt.
<u>Accrual Costs of Producing Milk</u>						
Operating costs	\$241,263	\$1,960	\$10.43	\$492,661	\$1,911	\$9.42
Total costs with- out op(s') labor, mgmt. & capital	\$272,521	\$2,214	\$11.78	\$548,708	\$2,128	\$10.49
Total Costs	\$331,326	\$2,692	\$14.32	\$627,995	\$2,436	\$12.01
<u>Accrual Receipts from Milk</u>						
	\$314,150	\$2,552	\$13.58	\$718,670	\$2,788	\$13.74

Operating costs of producing milk on all 357 dairy farms averaged \$10.43 per hundredweight, leaving \$3.15 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on all 357 dairy farms averaged \$14.32 per hundredweight, \$0.74 more than the average price received for milk sold from these farms during 1992. This implies dairy farmers are willing to receive returns less than the stated charges on their labor and equity capital to remain in farming. The imputed costs or charge for the operator's labor, management, and equity capital averaged \$2.54 per hundredweight in 1992. The computed returns averaged \$1.80 per hundredweight. See Table 34 on page 30 for detailed costs per hundredweight of milk. The 36 most profitable farms held their operating costs to \$9.42 per hundredweight and their total costs of producing milk averaged \$12.01 per hundredweight. This left a profit of \$1.73 per hundredweight of milk sold.

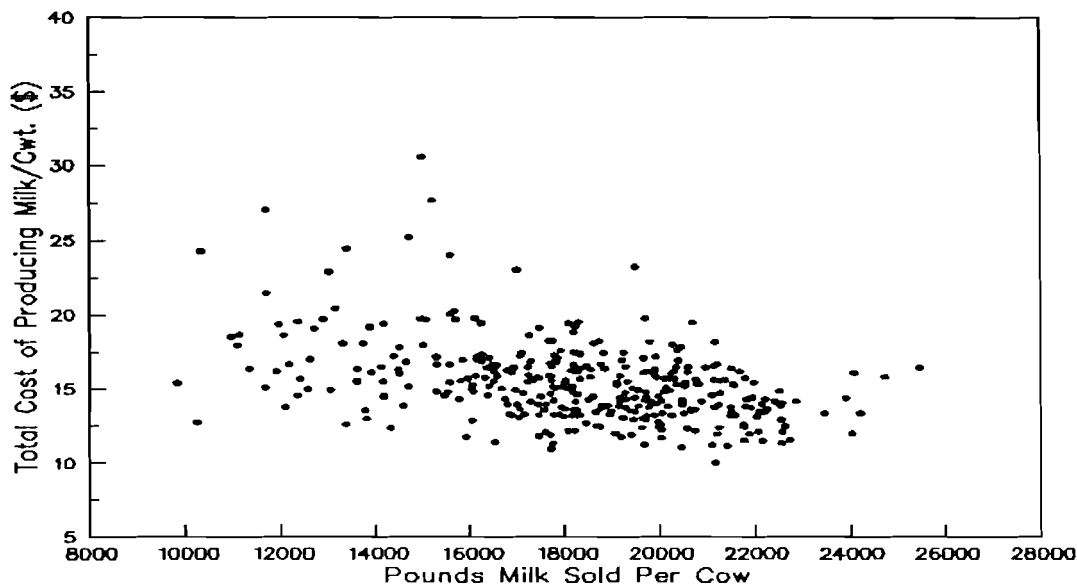
The strong relationship between milk output per cow and the total costs of producing milk are shown in Table 32. Farms selling less than 16,000 pounds of milk per cow had an average total cost of production of \$17.02 per hundredweight while those selling 18,000 pounds and over averaged approximately \$13.85 for a difference of \$3.17 per hundredweight.

**Table 32. FARM COST OF PRODUCING MILK BY MILK SOLD PER COW**  
357 New York Dairy Farms, 1992

Pounds Milk Sold Per Cow	Cost per Hundredweight			Accrual Receipts From Milk Per Cwt.	Return/Cwt. to Operator's Labor, Mgmt. & Capital
	Oper- ating	Operator's Labor, Mgmt. & Capital	Total		
Under 13,000	\$10.25	\$12.28	\$16.98	\$14.56	\$2.28
13,000 - 14,999	10.94	12.58	16.85	13.40	0.82
15,000 - 15,999	11.44	13.20	17.24	13.47	0.27
16,000 - 16,999	11.05	12.69	15.64	13.46	0.77
17,000 - 17,999	10.69	12.02	14.47	13.57	1.55
18,000 - 18,999	10.40	11.85	14.94	13.44	1.59
19,000 - 19,999	10.31	11.63	13.64	13.73	2.10
20,000 - 20,999	10.65	11.97	14.40	13.47	1.50
21,000 - 21,999	10.03	11.12	13.15	13.65	2.53
22,000 & over	9.81	10.96	13.13	13.46	2.50

The relationship between total costs of producing milk and milk sold per cow is diagrammed in Chart 5. It shows that as milk sold per cow increases from 12,000 pounds to 22,000 pounds per cow, on the average, total costs of production decrease from nearly \$18 to less than \$14 per hundredweight at a fairly constant rate.

Chart 5. TOTAL COST OF PRODUCTION PER HUNDREDWEIGHT & MILK PER COW  
357 New York Dairy Farms, 1992



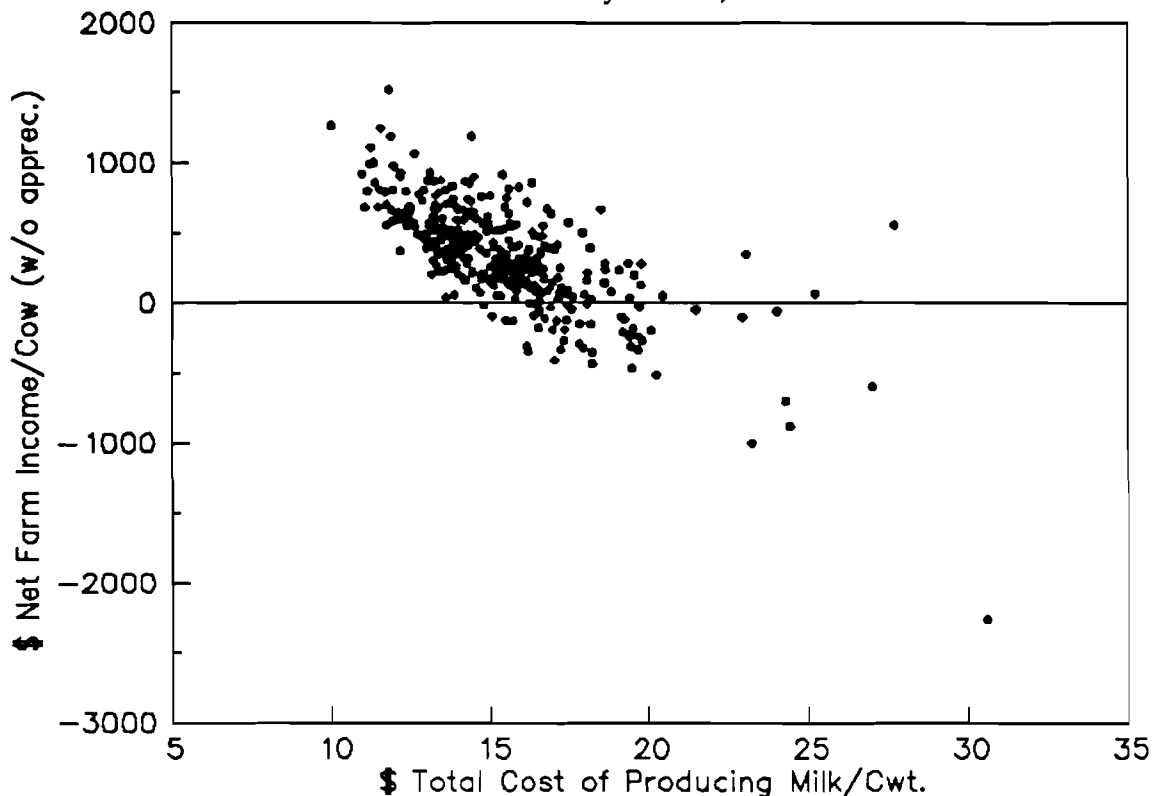
Data in Table 33 show average operating costs of producing milk somewhat higher on dairy farms with 150 to 300 cows. More labor is included as an operating expense on large farms because hired labor is a greater proportion of the total labor resources used. Total costs of production generally decline as herd size increases because the costs of operator's resources are spread over more units of production.

Table 33. FARM COST OF PRODUCING MILK BY HERD SIZE  
357 New York Dairy Farms, 1992

Number of Cows	Cost per Hundredweight			Accrual Receipts From Milk Per Cwt.	Return/Cwt. to Operator's Labor, Mgmt. & Capital
	Operating	Excluding Operator's Labor, Mgmt. & Capital	Total		
Under 40	\$10.61	\$12.71	\$18.03	\$12.96	\$0.25
40 to 54	10.15	12.13	16.68	13.39	1.26
55 to 69	9.96	11.71	15.57	13.43	1.72
70 to 84	10.31	11.98	15.31	13.52	1.54
85 to 99	9.98	11.43	14.65	13.52	2.09
100 to 149	10.37	11.74	14.60	13.47	1.73
150 to 199	10.56	11.72	14.14	13.63	1.91
200 to 299	11.25	12.46	14.57	13.74	1.28
300 & over	10.36	11.48	12.78	13.69	2.21

The importance of cost control and its impact on farm profitability are illustrated in Chart 6. As total cost of producing milk increased from \$11 to \$26 per hundredweight, net farm income per cow fell from approximately \$1,000 to \$-1,000. On the average, net farm income per cow was positive until total costs of production exceeded \$17 per hundredweight.

Chart 6. TOTAL COST PER HUNDREDWEIGHT & NET FARM INCOME PER COW  
357 New York Dairy Farms, 1992



A 10-year comparison of the average costs and returns of producing milk per hundredweight are presented in Table 34 on page 30. Average individual operating and overhead expenses per hundredweight of milk sold are reported on all specialized dairy farms included in the New York State Summary from 1983 through 1992. In 1992 average operating costs of producing milk increased eight percent after decreasing seven percent from 1990 to 1991. The average return per hundredweight to operator labor, management, and capital rose to \$1.80 in 1992, 58 percent above 1991.

A 10-year comparison of selected average business factors for all specialized DFBS farms is presented in Table 35 on page 31. Average cow numbers are up 40 percent, tillable acres have increased 27 percent, and milk sold per farm has jumped 72 percent since 1983. Capital investment per cow has increased 22 percent, far less than inflation, over the last 10 years. Labor and management income per operator increased dramatically in 1992, and farm net worth continued to grow.

Table 34.

TEN YEAR COMPARISON: AVERAGE COST OF PRODUCING MILK PER HUNDREDWEIGHT  
New York Dairy Farms, 1983 to 1992

Item	1983	1984	1985*	1986*	1987*	1988*	1989*	1990*	1991*	1992*
<u>Cash Operating Expenses</u>										
Hired labor	\$ 1.25	\$ 1.39	\$ 1.38	\$ 1.38	\$ 1.49	\$ 1.46	\$1.62	\$ 1.77	\$ 1.74	\$1.80
Purchased feed	3.59	3.46	3.09	3.15	3.26	3.73	4.02	4.28	3.88	3.92
Machinery repairs & rent	.77	.80	.78	.75	.88	.83	.92	1.06	.89	.93
Auto expenses (farm share)	.04	.03	.03	.04	.04	.04	.04	.05	.04	.04
Fuel, oil & grease	.49	.50	.48	.34	.35	.34	.33	.41	.37	.35
Replacement livestock	.16	.10	.10	.13	.13	.11	.17	.20	.15	.21
Breeding fees	.19	.20	.20	.19	.19	.18	.18	.19	.18	.18
Veterinary & medicine	.28	.29	.27	.28	.28	.28	.30	.32	.33	.35
Milk marketing	.93	1.03	.80	.84	.74	.52	.49	.53	.58	.63
Other dairy expenses	.54	.55	.53	.52	.53	.56	.60	.68	.65	.70
Lime & fertilizer	.63	.66	.63	.49	.50	.51	.50	.50	.40	.37
Seeds & plants	.21	.22	.23	.21	.21	.21	.22	.22	.20	.21
Spray & other crop expense	.19	.20	.22	.20	.19	.19	.21	.22	.20	.21
Land, building, fence repair	.18	.18	.17	.16	.20	.22	.27	.32	.19	.24
Taxes	.34	.33	.34	.33	.35	.35	.36	.37	.38	.35
Insurance	.21	.20	.22	.22	.22	.23	.23	.24	.23	.22
Telephone & elec. (farm share)	.36	.36	.37	.39	.38	.38	.39	.39	.39	.38
Interest paid	1.40	1.40	1.25	1.18	1.04	1.02	1.06	1.05	1.07	.88
Misc. (including rent)	.44	.44	.40	.41	.45	.41	.43	.47	.43	.44
Total Operating Expenses	\$12.20	\$12.34	\$11.50	\$11.22	\$11.43	\$11.57	\$12.34	\$13.27	\$12.30	\$12.41
<u>Less:</u> Nonmilk cash receipts	1.49	1.74	1.58	1.52	1.84	1.86	1.75	1.75	1.73	1.67
Increase in feed & supplies**	.26	.18	.05	.01	.16	.16	.02	.26	.04	.23
Increase in livestock	.24	.16	.18	.12	.10	.08	.12	.15	.18	.08
OPERATING COST OF MILK PRODUCTION	\$10.21	\$10.26	\$ 9.69	\$ 9.57	\$ 9.33	\$ 9.47	\$10.45	\$11.11	\$10.35	10.43
<u>Overhead Expenses</u>										
Depreciation: mach. & bldgs.	\$ 1.56	\$ 1.65	\$ 1.64	\$ 1.54	\$ 1.43	\$ 1.31	\$ 1.31	\$ 1.35	\$ 1.28	\$1.19
Unpaid labor	.12	.12	.12	.13	.10	.11	.12	.19	.18	.16
Operator(s) labor***	.89	.87	.97	.86	.87	.95	.98	1.10	1.06	.99
Operator(s) mgmt. (5% of cash rec.)	.76	.76	.72	.71	.74	.74	.81	.85	.73	.76
Interest on farm eq. cap. (5%)	1.20	1.22	1.16	1.10	1.15	1.19	1.24	1.24	1.20	1.11
Total Overhead Expenses	\$ 4.53	\$ 4.62	\$ 4.61	\$ 4.34	\$ 4.28	\$ 4.30	\$ 4.46	\$ 4.73	\$4.45	\$4.21
TOTAL COST OF MILK PRODUCTION	\$14.74	\$14.88	\$14.30	\$13.91	\$13.61	\$13.77	\$14.91	\$15.84	\$14.80	\$14.64
AVERAGE FARM PRICE OF MILK	\$13.64	\$13.49	\$12.90	\$12.65	\$12.89	\$13.03	\$14.53	\$14.93	\$12.95	\$13.58
Return per cwt. to operator labor, capital, & management	\$1.75	\$1.46	\$1.45	\$1.41	\$2.04	\$2.14	\$2.65	\$2.28	\$1.14	\$1.80
Rate of return on farm eq. cap.	0.4%	-0.7%	-1.0%	-0.7%	1.9%	1.8%	3.3%	1.3%	-2.7%	0.2%

\*Accrual receipts and expenses.      \*\*Increase in grown feeds, 1985-1991.      \*\*\*1980-1984 = \$750/month, 1985 = \$800/month, 1986 = \$850/month, 1987 = \$900/month, 1988 = \$1,000/month, 1989 = \$1,050/month, 1990 = \$1,250/month, 1991 = \$1,300/month, 1992 = \$1,350/month of operator labor.

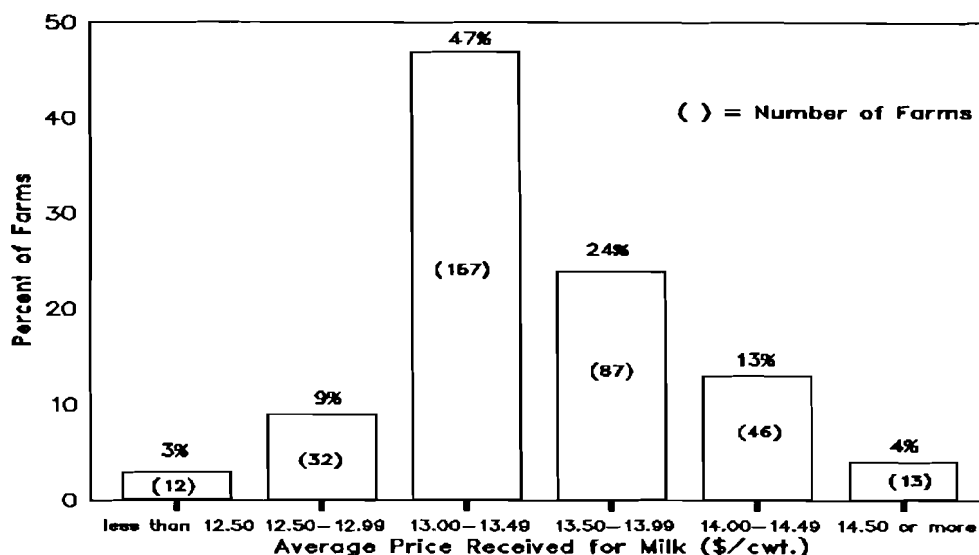
Table 35.

TEN YEAR COMPARISON: SELECTED BUSINESS FACTORS  
New York Dairy Farms, 1983 to 1992

Item	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Number of farms	510	458	404	414	426	406	409	395	407	357
<u>Cropping Program</u>										
Total tillable acres	272	280	280	288	305	302	316	325	330	346
Tillable acres rented	91	94	93	100	105	104	117	121	124	135
Hay crop acres	139	143	142	147	153	156	164	166	169	171
Corn silage acres	72	76	69	67	67	74	81	82	88	98
Hay crop, tons DM/acre	2.5	2.7	2.7	2.7	2.7	2.6	2.6	2.7	2.4	2.8
Corn silage, tons/acre	13.5	14.0	14.3	14.3	16.2	14.1	13.4	14.4	13.7	14.5
Fert. & lime exp. /tillable acre	\$31	\$32	\$32	\$26	\$27	\$29	\$29	\$29	\$25	\$25
Machinery cost/cow	\$413	\$433	\$426	\$400	\$413	\$398	\$425	\$483	\$438	\$444
<u>Dairy Analysis</u>										
Number of cows	88	89	89	95	101	102	104	107	111	123
Number of heifers	72	76	73	77	79	82	83	87	92	96
Milk sold, cwt.	13,432	13,735	14,001	15,374	16,498	17,200	17,975	19,005	20,060	23,130
Milk sold/cow, lbs.	15,264	15,433	15,679	16,237	16,351	16,882	17,259	17,720	18,027	18,789
Purchased dairy feed/cwt. milk	\$3.44	\$3.28	\$3.04	\$3.10	\$3.21	\$3.71	\$3.99	\$4.27	\$3.87	\$3.91
Purc. grain & conc. as % milk receipts	25%	24%	23%	24%	24%	28%	27%	28%	29%	28%
Purc. feed & crop exp./cwt. milk	\$4.62	\$4.53	\$4.13	\$4.00	\$4.11	\$4.62	\$4.92	\$5.21	\$4.67	\$4.70
<u>Capital Efficiency</u>										
Farm capital/cow	\$5,421	\$5,520	\$5,801	\$5,792	\$5,894	\$6,133	\$6,407	\$6,556	\$6,688	\$6,587
Real estate/cow	\$2,668	\$2,731	\$2,726	\$2,758	\$2,805	\$2,902	\$2,977	\$2,977	\$3,063	\$3,015
Mach. invest./cow	\$1,038	\$1,057	\$1,083	\$1,062	\$1,057	\$1,083	\$1,154	\$1,233	\$1,267	\$1,203
Asset turnover ratio	.42	.43	.40	.43	.45	.45	.48	.48	.43	.47
<u>Labor Efficiency</u>										
Worker equivalent	3.00	3.08	3.17	3.17	3.19	3.17	3.30	3.37	3.38	3.60
Operator/manager eq.	1.32	1.31	1.34	1.33	1.32	1.35	1.39	1.39	1.37	1.41
Milk sold/worker, lbs.	447,733	445,942	442,125	497,555	516,728	542,708	544,598	563,349	593,297	641,893
Cows/worker	29	29	28	31	32	32	32	32	33	34
Labor cost/cow	\$344	\$366	\$387	\$385	\$400	\$426	\$469	\$541	\$538	\$552
<u>Profitability &amp; Financial Analysis</u>										
Labor & mgmt. income/oper.	\$5,514	\$2,262	\$2,850	\$3,837	\$11,042	\$11,911	\$18,004	\$14,328	\$-955	\$11,254
Farm net worth	\$322,001	\$336,210	\$325,664	\$348,909	\$398,209	\$426,123	\$468,848	\$471,322	\$480,131	\$515,215
Percent equity	63%	64%	63%	62%	65%	66%	68%	66%	64%	64%

The average or mean price per hundredweight of milk sold is calculated by dividing the gross milk receipts for the year by the total pounds of milk sold. The average price for the 357 farms was \$13.58 but there was considerable variation among the individual farms. The variation in average price received and the distribution of farms around the mean is shown below.

Chart 7. VARIATION IN AVERAGE MILK PRICE  
357 New York Dairy Farms, 1992



Seventy-one percent of the farms received from \$13.00 to \$13.99 per hundredweight of milk sold. Seventeen percent of the farms received \$14.00 or more per hundredweight and 12 percent received less than \$13.00 per hundredweight. Location and organization of markets are factors contributing to the variability of milk prices on these dairy farms. Management practices on farms as well as in milk companies also affect farm milk prices. Seasonality of production and butterfat test are two variables under the direct control of the farm manager.

The accrual operating expenses most commonly associated with the dairy enterprise are listed in the table below. Evaluating these costs per unit of production enables the comparison of different size dairy farms for strengths and areas for improvement.

Table 36. DAIRY RELATED ACCRUAL EXPENSES  
357 New York Dairy Farms, 1992

Item	Average 357 Farms		Average Top 10% Farms	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.
Purc. dairy grain & conc.	\$713	\$3.80	\$746	\$3.68
Purchased dairy roughage	21	.11	31	.15
Total Purchased Dairy Feed	\$734	\$3.91	\$777	\$3.83
Purchased grain & conc. as % of milk receipts		28%		27%
Purchased feed & crop exp.	\$883	\$4.70	\$900	\$4.44
Purchased feed & crop exp. as % of milk receipts		35%		32%
Breeding	\$33	\$0.18	\$25	\$0.12
Veterinary & medicine	\$66	\$0.35	\$69	\$0.34
Milk marketing	\$118	\$0.63	\$101	\$0.50
Cattle lease	\$4	\$0.02	\$4	\$0.02
Other livestock expense	\$129	\$0.68	\$133	\$0.66

Feed costs per cow and per hundredweight of milk sold are influenced by a number of factors. These cost measures are affected by the amount of homegrown grains fed, quality and quantity of the roughage harvested, and the number of youngstock. Feed costs are also influenced by the farmer's ability to purchase grains and concentrates at reasonable prices and to balance nutrients fed with energy and protein requirements.

Purchased dairy grain and concentrates per cow is calculated by dividing the total accrual expenses for dairy grains and concentrates purchased by the average number of cows. Because this also includes the amount spent for calf and heifer feed, it actually represents the feed cost for one cow and 0.78 replacement being raised.

Purchased feed and crop expense per hundredweight of milk is one of the most useful feed cost measures because it accounts for some of the variations in feeding and cropping programs, and milk production between herds. It includes all purchased feeds used on the farm, and it includes crop expenses that are associated with feed production.

Purchased grain and concentrates as percent of milk sales is calculated by dividing feed purchased by milk receipts. This is another useful measure of feed efficiency although variations in homegrown grains fed and milk prices can have an adverse effect. Purchased feed and crop expense as percent of milk sales removes much of the variation caused by the feeding of home grown grains.

Cost control has an important affect on farm profitability. The relationship purchased feed and crop expense per hundredweight of milk has with farm profitability is shown in the following table.

Table 37. PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT  
OF MILK AND FARM INCOME MEASURES  
357 New York Dairy Farms, 1992

Feed & Crop Exp. Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Apprec.	Labor & Management Income Per Operator
\$6.50 or more	23	87	7.9	15,536	\$-3,586	\$-16,993
6.00 to 6.49	16	126	7.3	17,729	31,393	6,700
5.50 to 5.99	27	125	7.5	17,787	37,288	7,749
5.00 to 5.49	58	121	7.8	18,516	32,366	4,936
4.50 to 4.99	87	128	7.6	19,252	49,240	14,288
4.00 to 4.49	71	150	7.3	19,484	59,529	17,143
3.50 to 3.99	51	102	7.6	19,277	58,231	20,486
Less than 3.50	24	108	8.3	18,345	57,488	15,515

On the average, farms with purchased feed and crop expenses exceeding \$6.50 per hundredweight of milk sold reported well below average farm profits. Farms reporting less than \$5.00 per hundredweight showed above average profits. However, reducing feed and crop expenses does not necessarily lead to higher profits particularly when milk output per cow falls below average.



### Capital and Labor Efficiency Analysis

Capital efficiency factors measure how intensively capital is being used in the farm business. Measures of labor efficiency are key indicators of the work accomplished by each worker.

**Table 38.** **CAPITAL EFFICIENCY**  
**357 New York Dairy Farms, 1992**

Item (Average for Year)	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
Farm capital	\$225,041	\$6,587	\$2,344	\$3,843
Real estate		\$3,015		\$1,759
Machinery & equipment	\$41,103	\$1,203	\$428	
Asset turnover ratio	0.47			
<u>Average Top 10% Farms:</u>				
Farm capital	\$231,310	\$5,489	\$2,496	\$4,102
Real estate		\$2,366		\$1,768
Machinery & equipment	\$36,802	\$873	\$397	
Asset turnover ratio	0.63			

Asset turnover ratio measures the relationship between capital investment and farm receipts. It is computed by dividing the year's total farm accrual receipts including appreciation by the average farm assets. The relationship the asset turnover ratio has to farm profitability and other factors is shown in the following table. As a general rule, dairy farmers should aim for an asset turnover ratio of 0.5 or higher.

**Table 39.** **CAPITAL TURNOVER AND LABOR AND MANAGEMENT INCOME**  
**357 New York Dairy Farms, 1992**

Asset Turnover Ratio	No. of Farms	No. of Cows	Farm Capital (average for year) Per Cow Per Worker		Labor & Mgt. Inc. Per Operator	Net Farm Income (w/o apprec.)
≥ .70	17	322	\$ 4,181	\$176,695	\$73,234	\$154,819
.60 to .69	26	261	5,374	214,944	42,238	102,708
.50 to .59	58	130	6,043	203,207	18,435	52,149
.40 to .49	124	112	6,904	229,383	11,453	46,932
.30 to .39	88	86	8,049	247,309	- 4,640	19,594
Less than .30	44	64	10,173	280,698	-17,374	6,650

The 36 farms with the highest rates of return on all capital (without appreciation) were considerably above the average of all 357 farms in two measures of labor efficiency. The top 10 percent sold 33 percent more milk per worker than the average of all farms.

**Table 40.** **LABOR EFFICIENCY**  
**357 New York Dairy Farms, 1992**

Labor Efficiency	Average 357 Farms		Average Top 10% Farms	
	Total	Per Worker	Total	Per Worker
Cows, average number	123	34	258	42
Milk sold, pounds	2,313,008	641,893	5,229,105	854,727
Tillable acres	346	96	567	93

The labor force averaged 3.60 full-time worker equivalents per farm (based on 230 hours per month). Thirty-nine percent of the labor was supplied by the farm operator/managers. There were two operators on 131 farms, three on 36 farms, and 7 farms reported four operators.

Labor costs, labor efficiency, and farm profitability are closely related. Farms with high net farm incomes can attribute some of their success to the control of labor and machinery costs. Labor and machinery costs averaged \$95 per cow less on the 36 farms in the top decile.

**Table 41. LABOR FORCE INVENTORY AND COST ANALYSIS**  
357 New York Dairy Farms, 1992

Labor Force	Months	Age	Years of Educ.	Value of Labor & Mgmt.
Operator number 1	11.64	46	14	\$23,157
Operator number 2	3.97	40	14	7,274
Operator number 3	1.07	39	14	2,140
Operator number 4	0.23	32	13	<u>473</u>
Family paid	4.59			Total \$33,044
Family unpaid	2.70			
Hired	<u>19.04</u>			
Total	43.24	÷ 12 = 3.60 Worker Equivalent		
		1.41 Operator/Manager Equiv.		
<u>Average Top 10% Farms:</u>				
Total	73.41	÷ 12 = 6.12 Worker Equivalent		
Operators'	17.47	÷ 12 = 1.46 Operator/Manager Equiv.		

Labor Costs	Average 357 Farms			Avg. Top 10% Farms	
	Total	Per Cow	Per Til. Acre	Per Cow	Per Til. Acre
Value op.s' lab. (\$1,350/mo)	\$ 22,829	\$185	66	\$91	\$ 41
Family unpd. (\$1,350/mo.)	3,645	30	10	10	5
Hired	41,508	337	120	436	198
Total Labor	\$ 67,982	\$552	\$196	\$537	\$244
Machinery Cost	54,625	444	158	364	166
Total Labor & Mach.	\$122,606	\$996	\$354	\$901	\$410

The relationship of labor efficiency to net farm income is positive on the 357 farms. The higher outputs of milk sold per worker are partially attributable to more and higher producing cows.

**Table 42. MILK SOLD PER WORKER AND NET FARM INCOME**  
357 New York Dairy Farms, 1992

Pounds of Milk Sold Per Worker	No. of Farms	No. of Cows	Pounds Milk Per Cow	Net Farm Income (w/o apprec.)	Labor & Mgmt. Income Per Operator
Under 400,000	60	59	15,597	\$18,269	\$-3,206
400,000 to 499,999	82	74	17,020	20,972	-1,246
500,000 to 599,999	66	93	18,799	29,623	2,523
600,000 to 699,999	51	121	19,228	41,191	8,746
700,000 to 799,999	43	169	19,075	76,648	26,543
800,000 to 899,999	36	180	20,001	59,864	16,856
900,000 & over	19	440	19,890	202,143	85,029

## Farm Business Charts

The Farm Business Chart is a tool which can be used in analyzing a business by drawing a line through the figure in each column which represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 357 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. Each column of the chart is independent of the others. The farms which are in the top 10 percent for one factor would not necessarily be the same farms which make up the top 10 percent for any other factor.

The cost control factors are ranked from low to high, but the lowest cost is not necessarily the most profitable. In some cases, the "best" management position is somewhere near the middle or average. Many things affect the level of costs, and must be taken into account when analyzing the factors.

Table 43. FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS  
357 New York Dairy Farms, 1992

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
10.0	428	8,455,437	22,613	4.8	22	52	959,379
5.4	184	3,511,396	21,180	3.7	18	43	797,982
4.1	136	2,551,838	20,249	3.2	17	38	715,818
3.4	107	1,971,002	19,582	3.0	16	34	640,614
3.0	89	1,660,762	18,753	2.7	15	32	587,553
2.6	76	1,366,246	18,065	2.5	15	29	534,745
2.4	64	1,149,820	17,445	2.3	13	27	477,585
2.1	57	964,766	16,486	2.1	12	25	432,399
1.8	48	792,337	15,085	1.8	10	23	389,221
1.2	37	578,602	12,400	1.4	6	18	296,180
-----							
Cost Control							
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk		
\$ 348	16%	\$250	\$ 675	\$ 497	\$3.23		
484	21	325	803	649	3.77		
556	24	379	867	716	4.09		
618	26	414	926	783	4.36		
665	27	442	993	832	4.55		
712	29	478	1,058	892	4.76		
763	31	512	1,114	943	4.99		
826	32	548	1,180	1,004	5.27		
896	35	608	1,274	1,071	5.70		
1,030	42	796	1,563	1,232	6.76		

The next section of the Farm Business Chart provides for comparative analysis of the value and costs of dairy production.

The profitability section shows the variation in farm income by decile and enables a dairy farmer to determine where he or she ranks by using several measures of farm profitability. Remember that each column is independently established and the farms making up the top decile in the first column will not necessarily be on the top of any other column. The dairy farmer who ranks at or near the top of most of these columns is in a very enviable position.

**Table 43 (continued) FARM BUSINESS CHART FOR FARM  
MANAGEMENT COOPERATORS  
357 New York Dairy Farms, 1992**

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Oper. Cost Milk Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cow	Total Cost Production Per Cwt.
\$3,086	\$14.64	\$1,068	\$ 6.84	\$1,952	\$11.79
2,861	14.02	1,419	8.27	2,312	13.00
2,732	13.77	1,575	8.96	2,452	13.60
2,638	13.60	1,706	9.62	2,567	14.12
2,527	13.46	1,845	10.15	2,691	14.75
2,434	13.38	1,954	10.67	2,792	15.44
2,340	13.27	2,051	11.07	2,934	16.01
2,199	13.15	2,163	11.51	3,091	16.59
2,023	13.02	2,357	12.18	3,241	17.54
1,684	12.56	2,636	14.08	3,666	21.09

Profitability					
Net Farm Income		Return to Operator's Labor, Management, & Equity Capital		Labor & Management Income	
With Appreciation	Without Appreciation	With Appreciation	Without Appreciation	Per Farm	Per Operator
\$275,597	\$218,659	\$272,714	\$216,089	\$152,525	\$111,774
99,964	79,562	97,288	77,148	46,635	33,282
71,930	55,878	68,243	53,019	28,823	20,747
55,060	42,428	52,537	38,519	18,603	12,977
44,009	32,527	39,218	27,999	9,260	6,723
33,724	23,687	29,676	19,523	1,980	1,639
26,725	16,924	22,688	12,394	-4,505	-3,779
18,592	9,627	14,777	5,882	-13,845	-11,067
8,916	353	5,299	-4,196	-23,769	-21,005
-16,432	-31,254	-20,794	-34,417	-61,040	-53,650

Farm Business Charts for farms with freestall barns and 120 cows or less and more than 120 cows, and farms with conventional barns with 60 cows or less and more than 60 cows are discussed in the supplemental section on pages 53-56.

## Financial Analysis and Management

Analysis and astute management of farm financial affairs must receive high priority if the farm business is to be successful and if the farm family is to achieve a reasonable living standard.

The farm finance checklist and the financial analysis chart are provided to serve as guidelines. Dairy farmers can determine how their financial management measures up by comparing with average data from other farms.

Table 44.

### **A FARM FINANCE CHECKLIST 357 New York Dairy Farms, 1992**

	Average 357 New York Farms	Average Top 10% Farms*		
<u>How farm assets are being used</u> <u>(average for the year):</u>				
Total assets (capital) per cow	\$6,587	\$5,489		
Farm assets in livestock	22%	25%		
Farm assets in farm real estate	46%	43%		
Farm assets in machinery	18%	16%		
<u>Measures of debt capacity &amp; debt structure:</u>				
Equity in the business	64%	58%		
Farm debt per cow	\$2,390	\$2,328		
Long term debt/asset ratio**	0.38	0.48		
Intermediate & current term debt/asset ratio**	0.35	0.38		
Intermediate & current term debt as % of total	53%	52%		
<u>Debt repayment ability:***</u>				
Cash flow coverage ratio	1.04	1.50		
Debt payments made per cow	\$488	\$477		
Debt payments made as % of milk receipts	19%	17%		
<u>Indicators of annual financial progress:</u>				
	<u>Amount</u>	<u>Percent</u>	<u>Amount</u>	<u>Percent</u>
Annual change in farm assets	+\$44,848	+5.7%	+ 150,107	+11.2%
Annual change in farm debts	+\$15,561	+5.4%	+\$ 16,670	+ 2.7%
Annual change in farm net worth	+\$29,287	+5.9%	+\$133,437	+18.3%

\*Thirty-six farms with highest rates of return on all capital (without appreciation).

\*\*Long or intermediate and current term debt divided by long or intermediate and current term assets.

\*\*\*Average of 304 farms that participated in Summary Program both in 1991 and 1992. Twenty-eight of the 36 top 10 percent farms participated both years.

The most profitable farms carried \$62 less debt per cow, had a greater ability to make 1992 debt payments but equity in their business was six percent lower than that of the average.

Average farm debts grew 0.3 percent slower than assets during 1992. Average net farm worth increased 5.9 percent.

The farm financial analysis chart is designed just like the farm business chart on pages 36-37 and may be used to measure the financial health of the farm business. Most of the financial measures are defined on pages 12, 14, 18, and 34 in this publication.

Table 45. **FINANCIAL ANALYSIS CHART**  
357 New York Dairy Farms, 1992

<u>Liquidity (repayment)</u>				
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Payments as Percent of Milk Sales	Debt Per Cow
\$ 46	\$840	4.11	5%	\$ 116
191	663	1.75	9	754
276	579	1.37	13	1,302
362	494	1.14	15	1,781
411	440	0.98	17	2,160
458	401	0.86	19	2,521
501	339	0.73	22	2,882
584	274	0.60	25	3,243
677	181	0.29	30	3,735
885	-22	-0.14	38	5,214

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<u>Solvency</u>				<u>Profitability</u>	
Leverage Ratio*	Percent Equity	Debt/Asset Ratio		Percent Rate of Return with appreciation on:	
		Current & Intermediate	Long Term	Equity	Investment**
0.02	98%	0.01	0.00	22%	16%
0.11	90	0.08	0.00	11	10
0.24	81	0.14	0.04	8	8
0.35	73	0.21	0.18	5	6
0.48	68	0.29	0.28	3	4
0.58	63	0.35	0.38	1	3
0.74	57	0.39	0.48	-1	1
0.95	52	0.46	0.57	-4	-1
1.29	44	0.55	0.70	-8	-2
3.20	29	0.77	1.04	-26	-7

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<u>Efficiency (Capital)</u>				
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth w/Appreciation
.71	\$1,327	\$ 545	\$ 4,339	\$185,910
.57	2,044	792	5,156	59,227
.52	2,372	942	5,727	40,515
.48	2,667	1,054	6,243	28,384
.45	2,967	1,194	6,680	19,748
.42	3,279	1,358	7,120	13,025
.39	3,663	1,520	7,621	5,269
.35	4,188	1,753	8,236	-2,230
.31	4,861	2,008	9,100	-10,422
.24	7,201	2,722	12,014	-50,747

\*Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

\*\*Return on all farm capital (no deduction for interest paid) divided by total farm assets.

### Herd Size Comparisons

The 357 New York dairy farms have been sorted into nine herd size categories and averages for the farms in each category are presented in Tables 46 through 50. Note that after the less than 40 cow category, the herd size categories increase by 15 cows up to 100 cows, then by 50 cows up to 200 cows and by 100 cows up to 300 cows. The 300 or more cow category contains the greatest herd size range with one herd exceeding 2000 cows.

As herd size increases, the average profitability generally increases (Table 46). Net farm income without appreciation averaged \$4,790 per farm for the less than 40 cow farms and \$252,256 per farm for those with 300 cows and over. This relationship generally holds for all measures of profitability including rate of return on capital. However the 200 to 299 herd size group showed a lower level of profitability in 1992 than the farms with 150 to 199 cows.

It is more than size alone that determines profitability on dairy farms. Although average net farm income per cow was the lowest at \$150 for the smallest farms and highest at \$443 for the largest farms, there was much variety in between. The 85 to 99 cow group averaged \$422 net farm income per cow while the 200 to 299 cow group averaged only \$255 per cow. Other factors that affect profitability and their relationship to the size classifications are shown in Table 47.

Table 46. COWS PER FARM AND FARM FAMILY INCOME MEASURES  
357 New York Dairy Farms, 1992

Number of Cows	Number of Farms	Ave. no. of Cows	Net Farm Income Without Apprec.	Net Farm Income Per Cow	Labor & Management Inc./Oper.	Return on all capital without Apprec.
Under 40	19	32	\$ 4,790	\$150	\$-8,413	-4.5%
40 to 54	60	47	14,096	300	-2,089	-1.4%
55 to 69	63	62	23,919	386	1,967	0.5%
70 to 84	39	77	25,594	332	2,435	1.2%
85 to 99	37	91	38,421	422	8,737	3.0%
100 to 149	57	118	41,686	353	9,501	2.7%
150 to 199	38	171	64,831	379	26,578	4.2%
200 to 299	24	235	59,461	255	13,844	3.4%
300 & over	20	570	252,256	443	167,301	9.0%

Further study and analysis of the 200 to 299 cow size group reveals some of the reasons for the relatively low average net farm income of \$255 per cow in 1992. Milk sold per cow (Table 47) averaged 18,687 pounds, 100 pounds below the 357 DFBS farm average and well below the averages of other large farm categories.

Operating costs of producing milk averaged \$11.25 per hundredweight of milk sold on the 200 to 299 cow farms, 70 to 90 cents more per hundredweight compared to all other size groups with 100 cows and more. Their greatest operating expense was purchased feed which averaged \$799 per cow and \$4.28 per hundredweight of milk sold per cow, nine percent more than the 357 DFBS average for 1992.

Table 47.

**COWS PER FARM AND RELATED FARM FACTORS**  
**357 New York Dairy Farms, 1992**

Number of Cows	Avg. No. of Cows	Milk Sold Per Cow (lbs.)	Milk Sold Per Worker (cwt.)	Tilla- ble Acres Per Cow	Forage DM Per Cow (tons)	Farm Capital Per Cow	Cost of Producing Milk/Cwt.	
							Oper.	Total
Under 40	32	17,208	3,698	4.6	8.4	\$8,730	\$10.61	\$18.03
40 to 54	47	17,098	4,419	3.3	7.3	7,741	10.15	16.68
55 to 69	62	17,815	4,588	3.3	8.0	7,465	9.96	15.57
70 to 84	77	18,208	5,203	3.7	8.4	7,491	10.31	15.31
85 to 99	91	18,717	5,527	3.4	8.5	7,531	9.98	14.65
100 to 149	118	18,505	6,115	3.0	7.7	6,961	10.37	14.60
150 to 199	171	19,178	6,838	2.8	7.7	5,589	10.56	14.14
200 to 299	235	18,687	7,084	2.8	7.9	6,161	11.25	14.57
300 & over	570	19,795	9,235	2.0	6.8	5,362	10.36	12.78

The farms with 300 and more cows per farm averaged 15 percent more milk sold per cow than the smallest farms. All of the groups with 85 or more cows average well above 18,000 pounds of milk sold per cow while the farms smaller than 85 cows averaged 17,590 pounds of milk sold per cow.

The ability to reach high levels of milk output per cow with large herds is a major key to high profitability. Three times a day milking (3x) is a herd management practice commonly used to increase milk output per cow in large herds. Many dairy farmers who have been willing and able to employ and manage the labor required to milk 3x have been successful. Only eight percent of the 218 DFBS farms with less than 100 cows used a milking frequency greater than 2x. As herd size increased, the percent of herds using a higher milking frequency increased. Farms with 100 to 149 cows reported 19 percent of the herds milking more often than 2x, the 150-199 cow herds reported 45 percent, 200-299 cow herds reported 67 percent and the 300 cow and larger herds reported 80 percent exceeding the 2x milking frequency.

Milk output per worker has always shown a strong correlation with farm profitability. The farms with 100 cows or more averaged nearly 700,000 lbs. of milk sold per worker while the farms with less than 85 cows averaged only 457,000 pounds per worker.

In addition to achieving the highest productivity per cow and per worker, the largest farms practiced the most efficient use of cropland with 2.0 tillable acres per cow, and farm capital with an average investment of \$5,362 per cow.

The last column in Table 47 may be the most important in explaining why profits were significantly higher on the 300 plus cow farms. These 20 largest farms held their average total costs of producing milk to \$12.78 per hundredweight, \$1.63 below the \$14.41 average for the remaining 337 dairy farms. The lower average costs of production plus a somewhat higher average milk price gave the managers of the 300 plus cow dairy farms profit margins that averaged \$1.75 per hundredweight above the average of the other 337 DFBS farms.



Table 48.

**FARM BUSINESS SUMMARY BY HERD SIZE**  
**357 New York Dairy Farms, 1992**

Item	Farm Size:	Less than 40 Cows	40 to 54 Cows	55 to 69 Cows	70 to 84 Cows	85 to 99 Cows
Number of farms		19	60	63	39	37
<b>ACCRUAL EXPENSES</b>						
Hired labor		\$ 3,319	\$ 5,506	\$ 10,204	\$ 21,189	\$ 24,045
Dairy grain & concentrate		22,805	30,083	42,644	51,232	62,096
Dairy roughage		1,237	2,120	1,142	1,689	1,463
Nondairy feed		130	122	143	16	2,026
Machine hire/rent/lease		535	1,542	2,044	1,604	4,479
Machine repairs/parts		4,650	6,276	8,113	11,230	13,104
Auto expense (farm share)		521	603	648	1,036	979
Fuel, oil & grease		2,218	2,839	3,886	5,523	7,400
Replacement livestock		1,448	1,392	2,028	1,010	4,197
Breeding		1,558	1,625	2,450	3,247	3,532
Veterinary & medicine		2,060	2,424	3,564	4,574	5,197
Milk marketing		3,937	6,607	7,664	9,501	12,536
Cattle lease/rent		0	257	0	381	928
Other livestock expense		4,455	5,353	7,578	9,462	12,400
Fertilizer & lime		1,666	2,948	3,712	5,739	7,941
Seeds & plants		1,237	1,549	2,133	3,306	4,369
Spray & other crop expense		965	1,565	1,869	3,028	4,554
Land/building/fence repair		1,088	2,102	2,121	3,662	3,828
Taxes & rent		5,464	5,690	7,492	10,072	11,811
Telephone & electricity		3,350	4,133	5,396	6,526	7,257
Interest paid		5,648	8,705	9,691	13,402	16,412
Misc. (including insurance)		2,540	4,193	4,443	5,604	7,655
Total Operating Expenses		\$70,831	\$ 97,634	\$128,965	\$173,033	\$218,209
Expansion livestock		679	1,158	1,093	2,106	1,814
Machinery depreciation		5,941	7,942	9,408	13,027	15,042
Building depreciation		2,314	4,089	4,689	6,114	6,905
Total Accrual Expenses		\$79,765	\$110,823	\$144,155	\$194,280	\$241,970
<b>ACCRUAL RECEIPTS</b>						
Milk sales		\$71,735	\$107,940	\$147,328	\$188,864	\$230,716
Dairy cattle		7,578	7,733	11,504	18,599	21,659
Dairy calves		1,646	2,113	2,829	3,469	3,899
Other livestock		444	361	205	-246	4,664
Crops		1,523	2,807	3,054	3,746	10,351
Misc. receipts		1,629	3,965	3,154	5,442	9,102
Total Accrual Receipts		\$84,555	\$124,919	\$168,074	\$219,874	\$280,391
<b>PROFITABILITY ANALYSIS</b>						
Net farm income (w/o apprec.)		\$ 4,790	\$14,096	\$23,919	\$25,594	\$38,421
Net farm income (w/apprec.)		\$11,317	\$24,191	\$31,927	\$37,729	\$51,635
Labor & mgmt. income		-\$ 8,245	-\$ 2,402	\$ 2,597	\$ 3,093	\$12,232
Number of operators		0.98	1.15	1.32	1.27	1.40
Labor & mgmt. inc./oper.		-\$ 8,413	-\$ 2,089	\$ 1,967	\$ 2,435	\$ 8,737
Rates of return on:						
Equity capital w/o apprec.		-9.6%	-5.5%	-2.2%	-1.8%	0.9%
Equity capital w/apprec.		-6.2%	-1.5%	0.3%	1.5%	3.7%
All capital w/o apprec.		-4.5%	-1.4%	0.5%	1.2%	3.0%
All capital w/apprec.		-2.2%	1.3%	2.3%	3.3%	4.9%

**Table 48 (continued) FARM BUSINESS SUMMARY BY HERD SIZE**  
**357 New York Dairy Farms, 1992**

Item	Farm Size:	100 to 149 Cows	150 to 199 Cows	200 to 299 Cows	300 or More Cows
Number of farms		57	38	24	20
<u>ACCRUAL EXPENSES</u>					
Hired labor		\$ 34,014	\$ 59,515	\$ 94,124	\$ 280,325
Dairy grain & concentrate		82,017	119,893	184,911	423,317
Dairy roughage		1,991	2,494	3,047	14,367
Nondairy feed		199	994	0	0
Machine hire/rent/lease		3,870	5,198	5,495	18,480
Machine repairs/parts		19,032	25,199	36,072	74,972
Auto expense (farm share)		973	736	357	3,856
Fuel, oil & grease		8,084	13,388	16,380	27,737
Replacement livestock		3,330	12,249	11,165	20,291
Breeding		4,114	5,985	7,039	14,413
Veterinary & medicine		6,894	11,779	14,647	45,679
Milk marketing		12,510	23,808	34,558	46,961
Cattle lease/rent		504	562	405	1,987
Other livestock expense		14,257	20,398	32,367	78,812
Fertilizer & lime		9,187	15,495	17,140	30,405
Seeds & plants		4,815	7,927	9,191	19,694
Spray & other crop expense		5,167	8,214	8,394	19,765
Land/building/fence repair		4,882	8,362	8,797	30,355
Taxes & rent		12,444	19,051	24,818	54,060
Telephone & electricity		9,042	12,156	15,220	30,067
Interest paid		18,354	27,944	42,836	88,756
Misc. (including insurance)		9,580	14,330	17,124	46,374
Total Operating Expenses		\$265,260	\$415,677	\$584,087	\$1,370,673
Expansion livestock		3,264	6,344	7,187	68,250
Machinery depreciation		17,292	21,820	31,862	59,211
Building depreciation		8,606	13,871	18,863	64,928
Total Accrual Expenses		\$294,422	\$457,712	\$641,999	\$1,563,062
<u>ACCRUAL RECEIPTS</u>					
Milk sales		\$293,639	\$446,976	\$604,234	\$1,545,219
Dairy cattle		22,319	39,373	53,017	161,076
Dairy calves		4,671	7,683	8,505	27,181
Other livestock		1,618	3,342	1,390	530
Crops		5,722	16,153	16,755	45,059
Misc. receipts		8,139	9,016	17,059	36,253
Total Accrual Receipts		\$336,108	\$522,543	\$700,960	\$1,815,318
<u>PROFITABILITY ANALYSIS</u>					
Net farm income (w/o apprec.)		\$41,686	\$64,831	\$58,961	\$252,256
Net farm income (w/apprec.)		\$62,970	\$79,476	\$84,873	\$326,685
Labor & mgmt. income		\$ 9,501	\$26,578	\$13,844	\$167,301
Number of operators		1.47	1.77	1.88	1.77
Labor & mgmt. inc./oper.		\$ 6,463	\$15,016	\$7,364	\$94,520
Rate of return on:					
Equity capital w/o apprec.		0.6%	2.7%	0.8%	11.3%
Equity capital w/apprec.		4.4%	4.7%	3.8%	15.8%
All capital w/o apprec.		2.7%	4.2%	3.4%	9.0%
All capital w/apprec.		5.3%	5.5%	5.2%	11.4%

Table 49. FARM FAMILY FINANCIAL SITUATION BY HERD SIZE  
357 New York Dairy Farms, 1992

Item	Farms with: <u>Less than 40 Cows</u>		<u>40 to 54 Cows</u>		<u>55 to 69 Cows</u>	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31	Jan. 1	Dec. 31
<b>ASSETS</b>						
Farm cash/chkg./sav. \$	3,205	\$ 1,561	\$ 4,029	\$ 3,458	\$ 3,536	\$ 3,434
Accounts receivable	6,605	5,744	9,199	8,037	12,230	11,687
Prepaid expenses	0	73	9	60	29	11
Feed & supplies	12,712	13,685	19,268	21,375	26,803	29,516
Livestock*	51,725	51,175	67,454	69,847	95,212	97,211
Machinery & equipment*	47,088	51,445	69,328	71,958	84,336	86,572
Farm Credit stock	1,157	1,152	859	805	1,071	1,158
Other stock & cert.	840	876	1,676	1,870	4,004	3,765
Land & buildings*	<u>153,211</u>	<u>159,937</u>	<u>181,527</u>	<u>198,403</u>	<u>226,240</u>	<u>232,916</u>
Total Farm Assets	\$276,543	\$285,648	\$353,349	\$375,813	\$453,461	\$466,270
Pers. cash/chkg./sav. \$	1,452	\$ 1,342	\$ 2,487	\$ 2,685	\$ 7,272	\$ 7,907
Cash value of life ins.	5,594	5,676	4,536	4,485	4,302	5,108
Nonfarm real estate	15,556	15,556	25,615	26,865	18,189	17,514
Auto (personal share)	3,000	2,392	3,920	3,532	4,142	4,387
Stocks & bonds	266	264	3,996	4,350	9,105	9,011
Household furnishings	9,611	9,722	11,300	11,805	10,057	10,192
All other	<u>89</u>	<u>217</u>	<u>5,307</u>	<u>3,701</u>	<u>9,867</u>	<u>8,178</u>
Tot. Nonfarm Assets**	\$ 35,567	\$ 35,168	\$ 57,161	\$ 57,422	\$ 62,935	\$ 62,297
Total Farm & Nonfarm Assets	\$312,110	\$320,816	\$410,510	\$433,235	\$516,396	\$528,567
<b>LIABILITIES</b>						
Accounts payable	\$ 3,962	\$ 5,259	\$ 3,686	\$ 4,094	\$ 4,610	\$ 5,203
Operating debt	91	462	798	1,192	3,123	3,001
Short term	971	688	811	665	1,372	1,248
Advanced gov't. rec.	0	0	0	0	0	0
Intermediate***	28,613	34,789	38,770	38,893	55,754	56,233
Long term*	<u>52,596</u>	<u>49,964</u>	<u>65,056</u>	<u>72,947</u>	<u>68,631</u>	<u>70,177</u>
Total Farm Liab.	\$ 86,233	\$ 91,162	\$109,121	\$117,791	\$133,490	\$135,862
Tot. Nonfarm Liab.**	<u>1,638</u>	<u>0</u>	<u>4,277</u>	<u>4,234</u>	<u>775</u>	<u>682</u>
Total Farm & Nonfarm Liabilities	\$ 87,871	\$ 91,162	\$113,398	\$122,025	\$134,265	\$136,544
Farm Net Worth (Equity Capital)	\$190,310	\$194,486	\$244,228	\$258,022	\$319,971	\$330,408
Farm & Nonfarm Net Worth	\$224,239	\$229,654	\$297,112	\$311,210	\$382,131	\$392,023
<b>FINANCIAL MEASURES</b>						
	<u>Less than 40 Cows</u>		<u>40 to 54 Cows</u>		<u>55 to 69 Cows</u>	
Percent equity	68%		69%		71%	
Debt/asset ratio-long term	0.31		0.37		0.30	
Debt/asset ratio-inter. & current	0.33		0.25		0.28	
Change in net worth with apprec.	\$4,176		\$13,794		\$10,437	
Total farm debt per cow	\$2,762		\$2,454		\$2,157	
Debt payments made per cow	\$644		\$531		\$521	
Debt payments as % of milk sales	29%		23%		22%	
Amount avail. for debt service	\$12,841		\$18,647		\$25,368	
Cash flow coverage ratio for 1992	0.84		0.95		0.97	

\*Includes discounted lease payments \*\*Average of farms reporting nonfarm assets and liabilities for 1992.

\*\*\*Includes Farm Credit stock and discounted lease payments for cattle and machinery.

**Table 49 (cont'd) FARM FAMILY FINANCIAL SITUATION BY HERD SIZE**  
**357 New York Dairy Farms, 1992**

	Farms with:		70 to 84 Cows		85 to 99 Cows			
Item			Jan. 1	Dec. 31	Jan. 1	Dec. 31		
<b>ASSETS</b>								
Farm cash/chkg./savings	\$	2,784	\$	4,471	\$	5,585	\$	6,773
Accounts receivable		14,279		13,903		18,632		18,134
Prepaid expenses		31		90		73		81
Feed & supplies		43,031		45,367		48,582		55,134
Livestock*		120,305		123,575		138,585		146,747
Machinery & equipment*		122,064		124,977		142,093		149,059
Farm Credit stock		1,563		1,704		2,426		2,566
Other stock & cert.		3,114		3,390		5,913		6,355
Land & buildings*		<u>261,314</u>		<u>263,115</u>		<u>309,575</u>		<u>317,418</u>
Total Farm Assets		\$568,485		\$580,592		\$671,464		\$702,267
Pers. cash/chkg./savings	\$	9,638	\$	10,190	\$	4,129	\$	4,763
Cash value of life ins.		6,716		8,420		7,986		9,876
Nonfarm real estate		20,097		20,253		53,295		57,159
Auto (personal share)		3,061		3,790		3,118		3,316
Stocks & bonds		5,925		6,132		10,843		12,183
Household furnishings		10,063		10,056		11,500		11,500
All other		<u>1,555</u>		<u>1,774</u>		<u>8,730</u>		<u>9,221</u>
Total Nonfarm Assets**	\$	57,053	\$	60,615	\$	99,601		\$108,018
Total Farm & Nonfarm Assets		\$625,538		\$641,207		\$771,065		\$810,285
<b>LIABILITIES</b>								
Accounts payable	\$	8,422	\$	9,058	\$	8,202	\$	7,440
Operating debt		4,088		5,920		3,233		5,229
Short term		4,892		4,601		1,355		1,270
Advanced gov't. rec.		0		0		270		178
Intermediate***		74,473		73,075		111,698		117,217
Long term*		<u>116,106</u>		<u>113,104</u>		<u>89,607</u>		<u>86,864</u>
Total Farm Liab.		\$207,981		\$205,758		\$214,365		\$218,198
Total Nonfarm Liab.**		<u>1,036</u>		<u>846</u>		<u>1,227</u>		<u>4,191</u>
Total Farm & Nonfarm Liabilities		\$209,017		\$206,604		\$215,592		\$222,389
Farm Net Worth (Equity Capital)		\$360,504		\$374,834		\$457,099		\$484,069
Farm & Nonfarm Net Worth		\$416,521		\$434,603		\$555,473		\$587,896
<b>FINANCIAL MEASURES</b>			<b>70 to 84 Cows</b>		<b>85 to 99 Cows</b>			
Percent equity			65%		69%			
Debt/asset ratio-long term			0.43		0.27			
Debt/asset ratio-inter. & current			0.29		0.34			
Change in net worth with apprec.			\$14,330		\$26,970			
Total farm debt per cow			\$2,638		\$2,297			
Debt payments made per cow			\$548		\$438			
Debt payments as % of milk sales			22%		17%			
Amount avail. for debt service			\$34,473		\$43,079			
Cash flow coverage ratio for 1992			0.84		1.10			

\*Includes discounted lease payments.

\*\*Average of farms reporting nonfarm assets and liabilities for 1992.

\*\*\*Includes Farm Credit stock and discounted lease payments for cattle and machinery.

Table 49 (cont'd) FARM FAMILY FINANCIAL SITUATION BY HERD SIZE  
357 New York Dairy Farms, 1992

	Farms with:		100 to 149 Cows		150 to 199 Cows			
Item			Jan. 1	Dec. 31	Jan. 1	Dec. 31		
<b>ASSETS</b>								
Farm cash/chkg./savings	\$	8,395	\$	8,096	\$	9,324	\$	7,239
Accounts receivable		23,039		22,690		36,533		35,787
Prepaid expenses		0		20		286		239
Feed & supplies		62,287		67,788		94,640		103,849
Livestock*		174,300		187,631		244,054		258,353
Machinery & equipment*		159,148		163,666		205,876		220,045
Farm Credit stock		2,611		2,716		5,838		6,350
Other stock & cert.		5,214		5,448		16,309		19,840
Land & buildings*		<u>361,438</u>		<u>385,641</u>		<u>487,066</u>		<u>501,708</u>
Total Farm Assets		\$796,432		\$843,696		\$1,099,926		\$1,153,410
Pers. cash/chkg./savings	\$	9,925	\$	11,107	\$	3,520	\$	4,419
Cash value of life ins.		12,538		14,512		12,460		14,016
Nonfarm real estate		43,185		43,593		40,696		42,609
Auto (personal share)		3,415		3,174		2,056		2,165
Stocks & bonds		10,898		15,166		1,551		2,408
Household furnishings		8,230		8,230		6,761		7,196
All other		<u>8,194</u>		<u>9,981</u>		<u>3,859</u>		<u>4,953</u>
Total Nonfarm Assets**	\$	96,385		\$105,763	\$	70,903	\$	77,766
Total Farm & Nonfarm Assets		\$892,817		\$949,459		\$1,170,829		\$1,231,176
<b>LIABILITIES</b>								
Accounts payable	\$	6,938		\$8,668	\$	19,319	\$	24,565
Operating debt		7,100		8,358		16,789		14,453
Short term		3,316		3,976		3,912		2,573
Advanced gov't. rec.		0		0		0		0
Intermediate***		105,327		106,655		188,198		205,685
Long term*		<u>126,337</u>		<u>135,356</u>		<u>165,420</u>		<u>176,276</u>
Total Farm Liab.		\$249,018		\$263,013	\$	393,638	\$	423,552
Total Nonfarm Liab.**		<u>4,450</u>		<u>4,924</u>		<u>6,038</u>		<u>5,674</u>
Total Farm & Nonfarm Liabilities		\$253,468		\$267,937	\$	399,676	\$	429,226
Farm Net Worth (Equity Capital)		\$547,414		\$580,683	\$	706,288	\$	729,858
Farm & Nonfarm Net Worth		\$639,349		\$681,522	\$	771,153	\$	801,950
<b>FINANCIAL MEASURES</b>			<b>100 to 149 Cows</b>		<b>150 to 199 Cows</b>			
Percent equity			69%		63%			
Debt/asset ratio-long term			0.35		0.35			
Debt/asset ratio-inter. & current			0.28		0.38			
Change in net worth with apprec.			\$33,269		\$23,570			
Total farm debt per cow			\$2,192		\$2,380			
Debt payments made per cow			\$516		\$497			
Debt payments as % of milk sales			21%		19%			
Amount avail. for debt service			\$50,913		\$65,950			
Cash flow coverage ratio for 1992			1.00		0.86			

\*Includes discounted lease payments.

\*\*Average of farms reporting nonfarm assets and liabilities for 1992.

\*\*\*Includes Farm Credit stock and discounted lease payments for cattle and machinery.

Table 49 (cont'd) FARM FAMILY FINANCIAL SITUATION BY HERD SIZE  
357 New York Dairy Farms, 1992

Item	Farms with:		More than 300 Cows	
	200 to 299 Cows		More than 300 Cows	
	Jan. 1	Dec. 31	Jan. 1	Dec. 31
<b>ASSETS</b>				
Farm cash/chkg./savings	\$ 8,511	\$ 6,281	\$ 15,529	\$ 13,848
Accounts receivable	49,037	43,750	100,765	104,925
Prepaid expenses	145	185	5,984	10,385
Feed & supplies	120,817	132,365	286,543	331,362
Livestock*	330,642	355,194	735,961	812,878
Machinery & equipment*	239,544	246,917	430,047	468,248
Farm Credit stock	10,664	10,834	19,549	19,861
Other stock & cert.	32,717	34,995	54,714	58,702
Land & buildings*	624,460	651,275	1,264,003	1,381,796
Total Farm Assets	\$1,416,537	\$1,481,796	\$2,913,095	\$3,202,005
Pers. cash/chkg./savings	\$ 5,205	\$ 6,512	\$ 12,130	\$ 3,262
Cash value of life ins.	13,602	13,882	18,499	19,708
Nonfarm real estate	31,500	31,500	29,444	29,444
Auto (personal share)	1,500	2,714	5,972	5,556
Stocks & bonds	18,923	20,489	667	678
Household furnishings	5,857	5,914	3,111	3,444
All other	21,861	22,843	24,922	42,449
Total Nonfarm Assets**	\$ 98,449	\$ 103,855	\$ 94,746	\$ 104,542
Total Farm & Nonfarm Assets	\$1,514,986	\$1,585,651	\$3,007,841	\$3,306,547
<b>LIABILITIES</b>				
Accounts payable	\$ 32,296	\$ 44,997	\$ 24,639	\$ 21,358
Operating debt	32,236	33,022	89,784	122,384
Short term	11,545	5,781	28,202	25,005
Advanced gov't. rec.	0	0	0	0
Intermediate***	240,195	267,245	598,489	624,291
Long term*	261,245	261,759	615,712	661,544
Total Farm Liab.	\$ 577,517	\$ 612,804	\$1,356,826	\$1,454,582
Total Nonfarm Liab.**	8,834	7,865	12,786	10,744
Total Farm & Nonfarm Liabilities	\$ 586,351	\$ 620,669	\$1,369,612	\$1,465,326
Farm Net Worth (Equity Capital)	\$ 839,020	\$ 868,992	\$1,556,269	\$1,747,423
Farm & Nonfarm Net Worth	\$ 928,635	\$ 964,982	\$1,638,229	\$1,841,221
<b>FINANCIAL MEASURES</b>				
	200 to 299 Cows		More than 300 Cows	
Percent equity	59%		55%	
Debt/asset ratio-long term	0.40		0.48	
Debt/asset ratio-inter. & current	0.42		0.44	
Change in net worth with apprec.	\$29,972		\$191,154	
Total farm debt per cow	\$2,532		\$2,404	
Debt payments made per cow	\$444		\$474	
Debt payments as % of milk sales	17%		18%	
Amount avail. for debt service	\$103,014		\$311,478	
Cash flow coverage ratio for 1992	1.04		1.28	

\*Includes discounted lease payments.

\*\*Average of farms reporting nonfarm assets and liabilities for 1992.

\*\*\*Includes Farm Credit stock and discounted lease payments for cattle and machinery.

Table 50. SELECTED BUSINESS FACTORS BY HERD SIZE  
357 New York Dairy Farms, 1992

Item	Farms with:	Less than 40 Cows	40 to 54 Cows	55 to 69 Cows	70 to 84 Cows	85 to 99 Cows
Number of farms		19	60	63	39	37
<u>Cropping Program Analysis</u>						
Total Tillable acres		147	152	201	286	313
Tillable acres rented*		44	54	62	107	139
Hay crop acres*		93	97	126	158	163
Corn silage acres*		19	31	38	51	68
Hay crop, tons DM/acre		2.1	2.2	2.5	2.6	2.8
Corn silage, tons/acre		11.6	12.1	13.4	13.5	13.7
Oats, bushels/acre		65.0	68.3	62.3	55.3	52.7
Forage DM per cow, tons		8.4	7.3	8.0	8.4	8.5
Tillable acres/cow		4.6	3.2	3.3	3.7	3.4
Fert. & lime exp./til. acre		\$11.33	\$19.39	\$18.46	\$20.07	\$25.37
Total machinery costs		\$16,327	\$22,692	\$28,325	\$38,542	\$48,254
Machinery cost/tillable acre		\$111	\$149	\$141	\$135	\$154
<u>Dairy Analysis</u>						
Number of cows		32	47	62	77	91
Number of heifers		28	35	48	67	74
Milk sold, lbs.		553,383	805,895	1,097,201	1,397,315	1,706,308
Milk sold/cow, lbs.		17,208	17,098	17,815	18,208	18,717
Operating cost of prod. milk/cwt.		\$10.61	\$10.15	\$9.96	\$10.31	\$9.98
Total cost of prod. milk/cwt.		\$18.03	\$16.68	\$15.57	\$15.31	\$14.65
Price/cwt. milk sold		\$12.96	\$13.39	\$13.43	\$13.52	\$13.52
Purchased dairy feed/cow		\$747	\$684	\$711	\$690	\$697
Purchased dairy feed/cwt. milk		\$4.34	\$4.00	\$3.99	\$3.79	\$3.72
Purchased grain & conc. as % of milk receipts		32%	28%	29%	27%	27%
Purchased feed & crop expense/cwt. milk		\$5.04	\$4.75	\$4.69	\$4.65	\$4.71
<u>Capital Efficiency</u>						
Farm capital/worker		\$187,842	\$199,892	\$192,300	\$213,945	\$222,501
Farm capital/cow		\$8,730	\$7,741	\$7,465	\$7,491	\$7,531
Farm capital/til. acre owned		\$2,729	\$3,720	\$3,308	\$3,210	\$3,948
Real estate/cow		\$4,863	\$4,033	\$3,727	\$3,419	\$3,437
Machinery investment/cow		\$1,530	\$1,500	\$1,387	\$1,610	\$1,596
Asset turnover ratio		0.32	0.37	0.38	0.40	0.43
<u>Labor Efficiency</u>						
Worker equivalent		1.50	1.82	2.39	2.69	3.09
Operator/manager equivalent		0.98	1.15	1.32	1.27	1.40
Milk sold/worker, lbs.		369,797	441,855	458,813	520,328	552,735
Cows/worker		21	26	26	29	29
Work units/worker		242	271	276	315	326
Labor cost/cow		\$701	\$595	\$595	\$597	\$542
Labor cost/tillable acre		\$154	\$184	\$182	\$160	\$158

\*Average of all farms, not only those reporting data.

Table 50 (continued) SELECTED BUSINESS FACTORS BY HERD SIZE  
357 New York Dairy Farms, 1992

Item	Farms with: 100 to 149 Cows	150 to 199 Cows	200 to 299 Cows	300 or More Cows
Number of farms	57	38	24	20
<u>Cropping Program Analysis</u>				
Total tillable acres	347	485	646	1,128
Tillable acres rented*	119	222	265	460
Hay crop acres*	184	210	283	402
Corn silage acres*	81	141	252	490
Hay crop, tons DM/acre	2.8	2.9	2.8	3.5
Corn silage, tons/acre	14.8	15.2	13.2	16.0
Oats, bushels/acre	71.5	52.4	70.8	79.4
Forage DM per cow, tons	7.7	7.7	7.9	6.8
Tillable acres/cow	3.0	2.8	2.8	2.0
Fert. & lime exp./til. acre	\$ 26.48	\$ 31.95	\$ 26.53	\$ 26.95
Total machinery costs	\$57,258	\$76,766	\$102,239	\$206,067
Machinery cost/tillable acre	\$ 165	\$ 158	\$ 158	\$ 183
<u>Dairy Analysis</u>				
Number of cows	118	171	235	570
Number of heifers	97	122	192	424
Milk sold, lbs.	2,180,021	3,279,942	4,396,117	11,285,881
Milk sold/cow, lbs.	18,505	19,178	18,687	19,795
Operating cost of prod. milk/cwt.	\$10.37	\$10.56	\$11.25	\$10.36
Total cost of prod. milk/cwt.	\$14.60	\$14.14	\$14.57	\$12.78
Price/cwt. milk sold	\$13.47	\$13.63	\$13.74	\$13.69
Purchased dairy feed/cow	\$713	\$ 716	\$ 799	\$ 768
Purchased dairy feed/cwt. milk	\$ 3.85	\$ 3.73	\$ 4.28	\$ 3.88
Purchased grain & conc. as % of milk receipts	28%	27%	31%	27%
Purchased feed & crop expense/cwt. milk	\$4.73	\$4.70	\$5.07	\$4.50
<u>Capital Efficiency</u>				
Farm capital/worker	\$230,018	\$234,903	\$233,538	\$250,192
Farm capital/cow	\$6,961	\$6,589	\$6,161	\$5,362
Farm capital/til. acre owned	\$3,613	\$4,284	\$3,814	\$4,577
Real estate/cow	\$3,171	\$2,891	\$2,712	\$2,320
Machinery investment/cow	\$1,370	\$1,245	\$1,034	\$788
Asset turnover ratio	0.44	0.48	0.50	0.62
<u>Labor Efficiency</u>				
Worker equivalent	3.57	4.80	6.21	12.22
Operator/manager equivalent	1.47	1.77	1.88	1.77
Milk sold/worker, lbs.	611,469	683,846	708,448	923,495
Cows/worker	33	36	38	47
Work units/worker	348	368	397	456
Labor cost/cow	\$525	\$529	\$540	\$546
Labor cost/tillable acre	\$178	\$187	\$196	\$276

\*Average of all farms, not only those reporting data.



## SUPPLEMENTAL INFORMATION

Comparisons of business performance by types of housing and herd size, milking frequency, dairy region and type of business entity are presented in this section. Farm receipts and expenses per cow and per hundredweight of milk sold for different levels of milk output and herd size groups are included. One page summaries of the averages of DFBS dairy-renter farms, the top 10 percent farms by rate of return to all capital and all 357 dairy farms are also included.

Comparison by Type of Barn and Herd Size: When analyzing a dairy farm business by comparing it to a group of farms, it is important that the group of farms have used as many of the same physical characteristics as possible the farm being analyzed. To assist in this endeavor, dairy farms in the summary have been divided into those with freestall and those with conventional housing. Conventional housing includes stanchion and tiestall barns. Within each group, is a further classification by size of the dairy herd.

Table 51 on page 52 includes the average values for the resulting four groups of dairy farms. The average size of farms in the four groups ranges from 48 cows on the small conventional farms to 279 cows on the large freestall farms. The large conventional farms and small freestall farms averaged approximately the same herd size and rates of milk output per cow.

The large freestall farms averaged the highest milk output per cow and per worker, the lowest total costs of production and investment per cow, and the greatest returns to labor, management and capital. The large conventional farms showed average profits somewhat higher than the small freestall operations. Total costs of production averaged substantially less on the large conventional farms.

Farm business charts have been computed for each of the four housing and herd size categories and are on pages 53-56. By comparing the farm's performance on the most appropriate business chart, a farm manager will be better able to evaluate his or her business performance.

Comparison of Farms by Milking Frequency: Seventeen percent of the 357 DFBS farms utilized three times per day (3x) milking in 1992 and 13 percent of the 407 DFBS farms practiced 3x milking in 1991. Most of the remaining farms milked twice per day (2X). Two years of selected average business and cost of milk production factors from the two milking frequency groups are compared in Table 56.

In 1992 the 3x farms averaged seven more cows per farm, sold three percent more milk per cow, cut total costs of producing milk 17 cents per hundredweight and showed an average 80 percent increase in net farm income, compared to the 3x farm averages for 1991. The 2x farms also increased milk output per cow three percent, did not reduce total production costs and increased average net farm income only \$8,700 per farm in 1992 compared to 1991.

The 3x farms compared with the 2x farms averaged 16 percent more milk per farm and 39 percent additional milk per worker in 1992, very similar to the differences found in 1991. In 1992 the average total costs of producing milk were 12 percent lower on 3x farms than on 2x dairies. In 1991 the 3x farms showed a 10 percent cost advantage. So this data set shows that on the average, farmers milking 3x sold more milk per worker, produced milk at lower costs per hundredweight and received higher returns for their labor, management and capital than the average dairy farmer milking 2x. However, milking frequency was not the only, and probably not the most important, factor that contributed to financial success on these dairy farms. Comparison of herd size, crop yields, cows per

worker, capital invested per cow and machinery costs indicate there are other important management differences contributing to higher profits.

Receipts and Expenses per Hundredweight of Milk per Cow: Average itemized accrual receipts and expenses per cow and per hundredweight of milk sold are listed for all 357 dairy farms, 255 dairy farms selling less than 20,000 pounds of milk per cow, and 102 dairy farms selling 20,000 pounds per cow and more in Table 57 on page 58. Table 58 on page 59 provides the same list of average accrual receipts and expenses for 96 farms averaging less than 60 cows per farm, 122 farms with 60 to 100 cows and 139 farms with 100 cows or more.

These data are very useful for forward planning or budgeting when a farmer or planner does not have complete and accurate data from his or her own farm business. It is important to use the costs and returns per unit of output that most closely fit the level of production and herd size that is included in the plan. For example, an expansion budget for a 20,000 pound herd should include higher feed costs per cow than a budget for an 18,000 pound herd. Herds with more than 100 cows must budget higher labor costs per cow than smaller herds.

Comparison of Dairy Farm Business Data by Region: Average farm business summary data from our four areas or regions of the State are compared in Tables 59 and 60. The largest average farm size, highest average rate of milk production, and highest average farm profits came from the Western Plain and Central Region. Dairy farmers in this region have increased milk production 19.4 percent over the last ten years and they produced milk for an average total cost of \$13.58 per hundredweight in 1992, \$1.21 below the average of all the other New York dairy regions. However, it was the Northern New York region that averaged the lowest operating cost of producing milk and the highest returns to the operators' labor, management and equity capital per hundredweight sold in 1992.

Comparisons by Business Organization: A comparison of proprietorships, partnerships, and corporations is in Table 61. Farms organized as a corporation are two times larger than partnership-operated farms and more than three times larger than proprietorship-operated farms. Corporate farm operating expenses were more than double those on partnerships but productivity and labor efficiency were higher on the corporate farms. Total costs of producing milk were 47 cents lower for corporations than for partnerships, and \$1.03 lower than the average cost of producing milk on the single proprietorship farms.

Other comparisons: Fifty dairy renter farms were smaller on the average than the 357 owner-operated farms, and averaged higher returns to labor and management and higher returns to capital than the average specialized dairy farm (Table 62). A.E. Ext. 93-14 contains detailed information on Eastern New York dairy renters.

Data for the top 10 percent of farms by rate of return on all capital without appreciation is presented in Table 63. Using this measure of farm profitability resulted in the selection of the 36 farms that were most consistently the highest in all measures of farm profitability.

Summary data for the 357 specialized dairy farms are presented in Table 64.

Table 51. SELECTED BUSINESS FACTORS BY TYPE OF BARN AND HERD SIZE  
328 New York Dairy Farms, 1992

Item	Farms with:		Freestall	
	Conventional			
	<= 60 Cows	>60 Cows	<= 120 Cows	>120 Cows
Number of farms	99	86	59	84
<u>Cropping Program Analysis</u>				
Total Tillable acres	156	276	301	675
Tillable acres rented*	53	90	126	280
Hay crop acres*	100	165	154	268
Corn silage acres*	29	52	75	248
Hay crop, tons DM/acre	2.3	2.6	2.8	3.1
Corn silage, tons/acre	13.4	15.1	13.3	14.9
Oats, bushels/acre	57.0	68.8	60.3	67.6
Forage DM per cow, tons	7.6	7.9	8.7	7.2
Tillable acres/cow	3.3	3.1	3.5	2.4
Fert. & lime exp./til. acre	\$17.79	\$ 21.31	\$ 24.95	\$ 28.81
Total machinery costs	\$22,434	\$39,496	\$46,959	\$114,680
Machinery cost/tillable acre	\$144	\$ 143	\$ 156	\$ 170
<u>Dairy Analysis</u>				
Number of cows	48	89	87	279
Number of heifers	37	70	73	213
Milk sold, lbs.	828,310	1,617,663	1,566,899	5,421,782
Milk sold/cow, lbs.	17,337	18,131	18,042	19,469
Operating cost of prod. milk/cwt.	\$10.09	\$10.12	\$10.54	\$10.61
Total cost of prod. milk/cwt.	\$16.41	\$14.54	\$15.70	\$13.59
Price/cwt. milk sold	\$13.35	\$13.41	\$13.67	\$13.68
Purchased dairy feed/cow	\$713	\$727	\$714	\$750
Purchased dairy feed/cwt. milk	\$4.11	\$4.01	\$3.95	\$3.85
Purc. grain & conc. as % milk rec.	29%	29%	28%	27%
Purc. feed & crop exp./cwt. milk	\$4.81	\$4.73	\$4.98	\$4.62
<u>Capital Efficiency</u>				
Farm capital/worker	\$193,685	\$212,649	\$225,584	\$245,237
Farm capital/cow	\$7,641	\$7,032	\$7,534	\$6,012
Farm capital/til. acre owned	\$3,546	\$3,373	\$3,758	\$4,249
Real estate/cow	\$3,991	\$3,269	\$3,458	\$2,654
Machinery investment/cow	\$1,420	\$1,401	\$1,589	\$997
Asset turnover ratio	0.37	0.41	0.42	0.54
<u>Labor Efficiency</u>				
Worker equivalent	1.89	2.95	2.90	6.83
Operator/manager equivalent	1.15	1.41	1.38	1.71
Milk sold/worker, lbs.	439,237	548,374	540,489	794,151
Cows/worker	25	30	30	41
Labor cost/cow	\$610	\$526	\$563	\$546
Labor cost/tillable acre	\$187	\$170	\$162	\$225
<u>Profitability &amp; Balance Sheet Analysis</u>				
Net farm income (w/o apprec.)	\$15,377	\$35,087	\$26,671	\$105,301
Labor & mgmt. income/operator	\$-1,752	\$7,912	\$-70	\$31,312
Return on all capital w/apprec.	1.1%	4.2%	4.3%	7.9%
Farm debt/cow	\$2,353	\$2,174	\$2,482	\$2,462
Percent equity	70%	69%	67%	58%

\*Average of all farms, not only those reporting data.

Table 52. FARM BUSINESS CHART FOR SMALL CONVENTIONAL STALL DAIRY FARMS  
99 Conventional Stall Dairy Farms with 60 or Less Cows, New York, 1992

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
2.9	60	1,216,307	21,382	3.1	22	46	760,933
2.5	59	1,056,041	19,969	3.1	18	36	627,590
2.3	56	971,222	19,389	2.9	16	30	540,690
2.1	52	904,369	18,540	2.6	15	27	492,638
2.0	50	833,676	18,160	2.4	15	26	454,994
1.8	47	784,602	17,523	2.2	13	24	427,601
1.6	44	741,239	16,512	2.1	12	23	400,809
1.4	42	663,822	15,520	1.9	12	22	369,048
1.2	38	614,828	14,121	1.6	10	20	323,957
1.0	29	460,178	11,563	1.2	4	16	241,563

## Cost Control

Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
\$324	17%	\$251	\$ 666	\$ 451	\$3.20
454	23	304	810	582	3.78
531	25	352	917	671	4.12
602	26	396	977	724	4.34
650	28	437	1,049	783	4.52
690	29	470	1,108	849	4.73
729	31	506	1,159	913	4.95
796	33	545	1,212	967	5.33
874	35	599	1,316	1,054	5.90
1,068	43	867	1,680	1,302	6.88

## Value and Cost of Production

## Profitability

Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
			With Apprec.	Without Apprec.		
\$2,911	\$ 6.56	\$12.90	\$63,046	\$44,806	\$23,678	\$59,924
2,698	8.05	14.03	45,628	34,597	14,168	35,056
2,574	8.52	14.70	36,269	27,896	9,493	22,019
2,497	9.30	15.40	28,971	22,714	4,888	16,391
2,422	9.88	16.05	24,643	17,420	1,521	12,621
2,322	10.38	16.43	18,479	12,690	-2,983	6,278
2,178	10.84	16.83	14,042	8,549	-7,798	119
2,049	11.31	17.59	8,645	2,239	-13,240	-4,219
1,882	12.23	19.38	3,338	-3,095	-19,918	-9,925
1,468	13.66	23.90	-9,920	-17,335	-38,585	-20,443

Table 53. FARM BUSINESS CHART FOR LARGE CONVENTIONAL STALL DAIRY FARMS  
86 Conventional Stall Dairy Farms with More Than 60 Cows, New York, 1992

Size of Business			Rates of Production			Labor Efficiency	
Worker	No.	Pounds	Pounds	Tons	Tons Corn	Cows	Pounds
Equiv-	of	Milk	Milk Sold	Hay Crop	Silage	Per	Milk Sold
alent	Cows	Sold	Per Cow	DM/Acre	Per Acre	Worker	Per Worker
4.9	153	2,798,611	22,871	5.0	23	48	876,546
3.7	115	2,136,428	20,905	3.6	19	37	724,109
3.3	101	1,839,098	20,106	3.2	17	34	641,723
3.1	90	1,662,293	19,342	2.9	17	32	592,104
2.9	83	1,550,272	18,385	2.7	16	31	563,811
-----							
2.6	77	1,423,737	17,845	2.5	15	29	512,314
2.5	70	1,333,387	17,054	2.2	13	27	467,326
2.3	67	1,236,304	16,373	2.0	12	25	430,539
2.1	65	1,104,978	15,006	1.8	10	24	397,414
1.8	62	878,461	12,535	1.4	7	21	352,630
=====							
Cost Control							
Grain	% Grain is	Machinery	Labor &		Feed & Crop	Feed & Crop	
Bought	of Milk	Costs	Machinery		Expenses	Expenses Per	
Per Cow	Receipts	Per Cow	Costs	Per Cow	Per Cow	Cwt. Milk	
\$ 311	14%	\$223	\$ 620		\$ 442	\$3.02	
411	20	316	747		580	3.60	
506	22	369	824		656	3.79	
568	24	412	887		707	4.04	
636	26	426	945		811	4.41	
-----							
710	28	447	1,014		875	4.64	
807	31	489	1,075		953	4.93	
870	34	523	1,122		1,004	5.19	
925	37	563	1,197		1,058	5.60	
1,054	42	718	1,372		1,245	6.51	
=====							
Value and Cost of Production			Profitability				
Milk	Oper. Cost	Total Cost	Net Farm Income		Labor &	Change in	
Receipts	Milk	Production	With	Without	Mgmt. Inc.	Net Worth	
Per Cow	Per Cwt.	Per Cwt.	Apprec.	Apprec.	Per Oper.	w/Apprec.	
\$3,093	\$ 6.72	\$11.87	\$108,267	\$91,353	\$43,558	\$82,187	
2,821	7.90	12.73	74,747	65,766	28,599	41,744	
2,690	8.52	13.29	62,248	55,029	23,048	32,305	
2,590	9.10	13.68	53,294	43,685	18,555	25,438	
2,465	9.66	14.21	45,675	37,569	9,783	15,961	
-----							
2,394	10.37	14.75	34,976	28,776	4,808	8,831	
2,265	10.88	15.42	27,816	19,963	-1,813	4,654	
2,159	11.34	15.91	19,825	12,165	-7,608	-157	
2,013	11.76	16.56	11,517	2,831	-17,446	-6,447	
1,699	12.91	18.29	-9,556	-20,251	-43,084	-39,646	

Table 54. FARM BUSINESS CHART FOR SMALL FREESTALL DAIRY FARMS  
59 Freestall Barn Dairy Farms with 120 or Less Cows, New York, 1992

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
4.5	118	2,318,393	23,226	5.7	21	53	872,689
3.7	108	2,025,486	20,742	3.9	19	42	770,827
3.4	104	1,905,776	20,075	3.4	18	37	688,683
3.3	97	1,812,755	19,485	3.2	16	34	603,386
3.1	91	1,697,486	18,584	2.9	15	32	571,158
2.7	86	1,557,311	18,036	2.6	14	29	538,989
2.5	80	1,351,124	17,504	2.3	12	27	488,313
2.2	72	1,173,922	16,043	2.0	10	25	433,176
2.0	62	1,022,537	13,200	1.8	8	23	360,361
1.4	45	651,669	11,685	1.3	3	15	270,409

## Cost Control

Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
\$ 374	16%	\$264	\$ 679	\$ 529	\$3.36
488	20	376	810	653	3.83
551	23	406	872	708	4.24
605	26	448	933	803	4.50
658	28	490	1,011	864	4.83
705	30	538	1,097	924	5.10
749	31	592	1,183	998	5.26
827	33	644	1,290	1,066	5.56
900	35	692	1,449	1,109	6.29
974	39	875	1,741	1,186	6.91

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income With Apprec.	Without Apprec.	Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
\$3,115	\$ 6.33	\$11.89	\$179,031	\$86,712	\$51,557	\$133,449
2,801	8.39	13.23	79,233	61,053	22,625	55,877
2,718	9.37	14.13	63,081	48,995	10,907	38,686
2,626	9.78	14.97	51,912	36,234	6,110	27,392
2,534	10.13	15.66	41,056	25,578	1,978	19,985
2,451	10.57	16.07	34,711	18,848	- 689	13,594
2,353	11.17	16.67	28,891	15,569	- 4,932	5,705
2,186	11.72	17.68	22,662	9,092	-15,149	- 4,431
1,895	12.99	18.98	7,870	- 9,009	-26,857	-13,164
1,694	14.79	20.47	-22,606	-36,917	-65,994	-46,141

Table 55. FARM BUSINESS CHART FOR LARGE FREESTALL DAIRY FARMS  
84 Freestall Barn Dairy Farms with More Than 120 Cows, New York, 1992

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
17.8	827	16,288,987	22,717	5.0	21	60	1,138,851
8.4	370	7,526,000	21,818	4.1	18	47	899,158
7.3	280	5,563,510	21,355	3.6	17	44	845,337
6.2	234	4,442,314	20,495	3.3	16	42	805,033
5.8	205	3,922,439	19,777	3.0	16	40	760,845
5.2	190	3,626,910	19,160	2.8	15	37	731,079
4.8	173	3,324,340	18,228	2.6	14	35	690,044
4.3	158	3,036,766	17,535	2.4	13	33	647,088
3.8	145	2,675,565	16,783	2.2	11	31	598,697
3.2	128	2,294,285	14,619	1.8	7	27	492,796

## Cost Control

Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk
\$ 411	15%	\$259	\$ 713	\$ 644	\$3.19
556	21	320	810	765	3.86
618	24	366	850	803	4.17
667	25	397	879	819	4.41
701	27	421	924	873	4.55
728	28	441	1,001	910	4.70
768	30	479	1,037	937	4.90
804	31	513	1,099	982	5.12
861	33	553	1,185	1,038	5.44
960	38	691	1,339	1,141	6.23

Value and Cost of Production			Profitability			
Milk Receipts Per Cow	Oper. Cost Milk Per Cwt.	Total Cost Production Per Cwt.	Net Farm Income		Labor & Mgmt. Inc. Per Oper.	Change in Net Worth w/Apprec.
\$3,137	\$ 7.56	\$11.30	\$556,579	\$437,174	\$266,126	\$368,663
2,978	8.92	12.22	219,914	202,962	78,676	133,568
2,893	9.56	12.99	152,924	127,718	43,360	85,566
2,792	10.27	13.36	117,022	95,001	33,386	57,664
2,701	10.82	13.66	100,788	79,566	21,848	41,655
2,597	11.10	13.92	85,282	55,575	10,659	25,685
2,486	11.30	14.55	53,580	37,649	-1,813	16,246
2,365	11.65	15.37	35,584	19,581	-12,922	-1,307
2,297	12.24	16.26	22,661	-954	-34,149	-34,827
2,024	13.58	17.28	-29,806	-56,453	-79,753	-96,233

**Table 56. SELECTED BUSINESS FACTORS BY MILKING FREQUENCY**  
**New York State Dairy Farms, 1991 & 1992**

Item	2x/Day Milking		3x/Day Milking	
	1991	1992	1991	1992
Number of farms	340	280	53	61
<u>Business Size &amp; Production</u>				
Number of cows	91	92	230	237
Number of heifers	76	73	187	179
Milk sold, lbs.	1,563,022	1,619,107	4,562,561	4,846,003
Milk sold/cow, lbs.	17,179	17,662	19,858	20,470
Milk plant test, % BF	3.68%	3.70%	3.61%	3.65%
Tillable acres, total	291	285	568	563
Hay crop, tons DM/acre	2.3	2.6	2.7	3.0
Corn silage, tons/acre	13.3	13.6	14.3	15.7
Forage DM/cow, tons	7.6	7.8	7.2	7.3
<u>Labor &amp; Capital Efficiency</u>				
Worker equivalent	2.89	2.89	6.25	6.23
Milk sold/worker, lbs.	540,462	560,453	730,306	777,706
Cows/worker	31	32	37	38
Farm capital/worker	\$218,023	\$218,509	\$228,493	\$236,841
Farm capital/cow	\$6,929	\$6,884	\$6,212	\$6,235
Farm capital/cwt. milk	\$40.34	\$38.99	\$31.29	\$30.45
<u>Milk Production Costs &amp; Returns</u>				
Selected costs/cwt.:				
Hired labor	\$1.43	\$1.40	\$2.35	\$2.27
Grain & concentrate	\$3.75	\$3.87	\$3.82	\$3.73
Purchased roughage	\$0.10	\$0.11	\$0.09	\$0.09
Replacements purchased	\$0.16	\$0.21	\$0.13	\$0.21
Vet & medicine	\$0.31	\$0.33	\$0.35	\$0.37
Milk marketing	\$0.64	\$0.69	\$0.44	\$0.55
Other dairy expenses	\$0.61	\$0.70	\$0.66	\$0.72
Operating costs/cwt.	\$10.21	\$10.42	\$10.59	\$10.53
Total labor costs/cwt.	\$3.04	\$3.02	\$2.89	\$2.83
Operator resources/cwt.	\$3.28	\$3.22	\$1.69	\$1.70
Total costs/cwt.	\$15.06	\$15.14	\$13.57	\$13.40
Average farm price/cwt.	\$12.90	\$13.54	\$13.02	\$13.66
Return over total costs/cwt.	\$-2.16	\$-1.60	\$-0.55	\$0.26
<u>Related Cost Factors</u>				
Hired labor/cow	\$246	\$247	\$466	\$464
Total labor/cow	\$521	\$534	\$574	\$579
Purchased dairy feed/cow	\$661	\$703	\$777	\$783
Purchased grain & concentrate as % milk receipts	29%	29%	29%	27%
Vet & medicine/cow	\$53	\$59	\$70	\$76
Machinery costs/cow	\$451	\$459	\$410	\$420
<u>Profitability Analysis</u>				
Net farm income (w/o apprec.)	\$21,443	\$30,137	\$54,465	\$97,952
Labor & mgmt. income/operator	\$-3,181	\$3,473	\$9,276	\$35,407
Rates of return on:				
Equity capital w/apprec.	-0.15%	2.08%	6.32%	10.51%
All capital w/apprec.	2.37%	3.63%	7.24%	8.97%



Table 57.

FARM RECEIPTS AND EXPENSES PER COW AND PER  
HUNDREDWEIGHT FOR TWO LEVELS OF MILK PRODUCTION  
357 New York Dairy Farms, 1992

Item	357 Dairy Farms		255 Dairy Farms Milk/Cow <20,000#		102 Dairy Farms Milk/Cow ≥ 20,000#	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<b>ACCRUAL RECEIPTS</b>						
Milk sales	\$2,552	\$13.58	\$2,364	\$13.61	\$2,907	\$13.54
Dairy cattle	230	1.23	220	1.27	250	1.16
Dairy calves	44	0.23	41	0.23	49	0.23
Other livestock	11	0.06	8	0.05	16	0.07
Crops	72	0.38	66	0.38	84	0.39
Government receipts	31	0.16	34	0.19	26	0.12
All other	38	0.19	35	0.19	42	0.20
<b>TOTAL ACCRUAL RECEIPTS</b>	<b>\$2,978</b>	<b>\$15.83</b>	<b>\$2,768</b>	<b>\$15.92</b>	<b>\$3,374</b>	<b>\$15.71</b>
<b>ACCRUAL EXPENSES</b>						
<u>Labor</u> : Hired	\$ 337	\$ 1.80	\$ 290	\$ 1.67	\$ 427	\$ 1.99
<u>Feed</u> : Dairy grain & conc.	713	3.80	685	3.94	767	3.58
Dairy roughage	21	0.11	19	0.11	25	0.11
Nondairy	3	0.02	2	0.01	6	0.03
<u>Machinery</u> : Machine hire/ rent/ lease	31	0.17	26	0.15	41	0.19
Mach. repairs/parts	144	0.76	136	0.78	157	0.74
Auto expense (farm share)	7	0.04	6	0.04	10	0.04
Fuel, oil, grease	65	0.35	65	0.37	66	0.30
<u>Livestock</u> : Replacement livestock	40	0.21	40	0.23	39	0.18
Breeding	33	0.18	30	0.17	40	0.18
Vet & medicine	66	0.35	59	0.34	77	0.36
Milk marketing	118	0.63	103	0.59	146	0.68
Cattle lease/rent	4	0.02	4	0.02	3	0.02
Other livestock expense	129	0.68	115	0.67	153	0.71
<u>Crops</u> : Fertilizer & lime	70	0.37	66	0.38	78	0.36
Seeds & plants	39	0.21	36	0.21	45	0.21
Spray & other crop expense	39	0.21	35	0.20	47	0.22
<u>Real Estate</u> : Land/ building/fence repair	45	0.24	39	0.22	57	0.27
Taxes	66	0.35	67	0.39	64	0.30
Rent & lease	44	0.24	41	0.23	51	0.24
<u>Other</u> : Insurance	42	0.22	43	0.25	39	0.18
Telephone (farm share)	6	0.03	7	0.04	6	0.03
Electricity (farm share)	65	0.34	62	0.36	70	0.33
Interest paid	166	0.88	165	0.95	168	0.78
Miscellaneous	38	0.20	38	0.22	40	0.18
<b>TOTAL OPERATING EXPENSES</b>	<b>\$2,332</b>	<b>\$12.41</b>	<b>\$2,179</b>	<b>\$12.54</b>	<b>\$2,622</b>	<b>\$12.21</b>
Expansion livestock	51	0.27	65	0.37	27	0.13
Machinery depreciation	137	0.73	135	0.78	140	0.65
Building depreciation	88	0.47	85	0.49	93	0.43
<b>TOTAL ACCRUAL EXPENSES</b>	<b>\$2,608</b>	<b>\$13.88</b>	<b>\$2,464</b>	<b>\$14.18</b>	<b>\$2,882</b>	<b>\$13.42</b>

Table 58.

**FARM RECEIPTS AND EXPENSES PER COW AND PER  
HUNDREDWEIGHT FOR THREE HERD SIZE CATEGORIES  
357 New York Dairy Farms, 1992**

Item	96 Dairy Farms with <60 Cows		122 Dairy Farms with 60-100 Cows		139 Dairy Farms with ≥ 100 Cows	
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	Per Cow	Per Cwt.
<b>ACCRUAL RECEIPTS</b>						
Milk sales	\$2,297	\$13.35	\$2,470	\$13.49	\$2,615	\$13.64
Dairy cattle	177	1.03	224	1.23	240	1.25
Dairy calves	49	0.29	43	0.23	43	0.23
Other livestock	8	0.04	19	0.10	9	0.04
Crops	52	0.30	74	0.41	74	0.39
Government receipts	22	0.13	37	0.20	31	0.16
All other	47	0.27	42	0.22	35	0.17
<b>TOTAL ACCRUAL RECEIPTS</b>	<b>\$2,652</b>	<b>\$15.41</b>	<b>\$2,909</b>	<b>\$15.88</b>	<b>\$3,047</b>	<b>\$15.88</b>
<b>ACCRUAL EXPENSES</b>						
<u>Labor</u> : Hired	\$ 129	\$ .75	\$ 236	\$ 1.29	\$ 399	\$ 2.08
<u>Feed</u> : Dairy grain & conc.	658	3.82	682	3.72	731	3.81
Dairy roughage	36	0.21	20	0.11	19	0.10
Nondairy	4	0.02	8	0.04	2	0.01
<u>Machinery</u> : Machine hire/ rent/ lease	34	0.19	34	0.18	30	0.16
Mach. repairs/parts	135	0.79	140	0.77	146	0.76
Auto expense (farm share)	12	0.07	12	0.06	6	0.03
Fuel, oil, grease	61	0.36	73	0.40	63	0.33
<u>Livestock</u> : Replacement livestock	30	0.17	32	0.18	44	0.23
Breeding	38	0.22	40	0.22	30	0.16
Vet & medicine	54	0.31	58	0.32	70	0.36
Milk marketing	132	0.77	130	0.71	112	0.58
Cattle lease/rent	3	0.02	5	0.03	3	0.02
Other livestock expense	119	0.69	128	0.70	130	0.68
<u>Crops</u> : Fertilizer & lime	60	0.35	75	0.41	70	0.37
Seeds & plants	33	0.19	43	0.23	39	0.20
Spray & other crop expense	33	0.19	40	0.22	40	0.21
<u>Real Estate</u> : Land/ building/fence repair	40	0.23	42	0.23	47	0.24
Taxes	97	0.56	82	0.45	57	0.30
Rent & lease	34	0.20	44	0.24	46	0.24
<u>Other</u> : Insurance	49	0.28	48	0.26	39	0.20
Telephone (farm share)	11	0.06	9	0.05	5	0.02
Electricity (farm share)	79	0.46	75	0.41	59	0.31
Interest paid	181	1.05	170	0.93	162	0.85
Miscellaneous	35	0.21	29	0.15	42	0.22
<b>TOTAL OPERATING EXPENSES</b>	<b>\$2,098</b>	<b>\$12.18</b>	<b>\$2,255</b>	<b>\$12.31</b>	<b>\$2,391</b>	<b>\$12.47</b>
Expansion livestock	22	0.13	22	0.12	65	0.34
Machinery depreciation	167	0.97	163	0.89	124	0.65
Building depreciation	82	0.48	77	0.42	92	0.48
<b>TOTAL ACCRUAL EXPENSES</b>	<b>\$2,369</b>	<b>\$13.76</b>	<b>\$2,517</b>	<b>\$13.74</b>	<b>\$2,672</b>	<b>\$13.94</b>

Table 59. COMPARISON OF DAIRY FARM BUSINESS DATA BY REGION  
357 New York Dairy Farms, 1992

Item	Plateau Region	W. Plain & Central Region	Northern New York	Oneida- Mohawk & Hudson Reg.
Number of farms	107	80	73	97
<u>ACCRUAL EXPENSES</u>				
Hired labor	\$ 26,741	\$ 97,322	\$ 23,965	\$ 24,968
Feed	67,429	168,545	66,998	70,321
Machinery	22,870	52,736	23,759	25,586
Livestock	35,183	86,991	28,943	43,916
Crops	13,667	34,315	11,088	15,739
Real estate	15,115	31,937	13,862	17,031
Other	30,056	67,577	31,107	31,109
Total Operating Expenses	\$211,061	\$539,423	\$199,722	\$228,670
Expansion livestock	2,923	18,688	2,579	2,775
Machinery depreciation	14,835	27,532	13,427	12,786
Building depreciation	6,509	24,036	6,636	7,669
Total Accrual Expenses	\$235,328	\$609,679	\$222,364	\$251,900
<u>ACCRUAL RECEIPTS</u>				
Milk sales	\$227,122	\$594,737	\$226,218	\$244,914
Livestock	26,383	69,941	24,240	23,967
Crops	6,192	14,851	4,804	9,905
All other	6,774	14,209	4,678	7,781
Total Accrual Receipts	\$266,471	\$693,738	\$259,940	\$286,567
<u>PROFITABILITY ANALYSIS</u>				
Net farm income (w/o apprec.)	\$31,143	\$84,059	\$37,576	\$34,667
Net farm income (w/apprec.)	\$46,246	\$117,258	\$44,423	\$48,121
Labor & mgmt. income	\$4,838	\$40,873	\$17,150	\$6,465
Number of operators	1.33	1.52	1.27	1.51
Labor & mgmt. income/operator	\$3,638	\$26,890	\$13,504	\$4,281
<u>BUSINESS FACTORS</u>				
Worker equivalent	3.04	5.69	2.79	3.12
Number of cows	91	227	91	97
Number of heifers	73	170	74	76
Acres of hay crops*	155	211	152	169
Acres of corn silage*	61	206	61	77
Total tillable acres	276	568	265	301
Pounds of milk sold	1,670,867	4,394,537	1,693,845	1,770,591
Pounds of milk sold/cow	18,288	19,357	18,639	18,318
Tons hay crop dry matter/acre	2.7	3.2	2.7	2.5
Tons corn silage/acre	14.1	14.3	14.9	15.0
Cows/worker	30	40	33	31
Pounds of milk sold/worker	550,203	772,609	608,157	566,878
% grain & conc. of milk receipts	29%	27%	29%	28%
Feed & crop expense/cwt. milk	\$4.80	\$4.61	\$4.60	\$4.86
Fertilizer & lime/crop acre	\$24.09	\$27.22	\$18.56	\$26.87
Machinery cost/tillable acre	\$159	\$162	\$161	\$148

\*Average of all farms in the region, not only those producing the crop.

Figure 2. Percent Increase in Milk Production, Four Regions in New York, 1982-1992

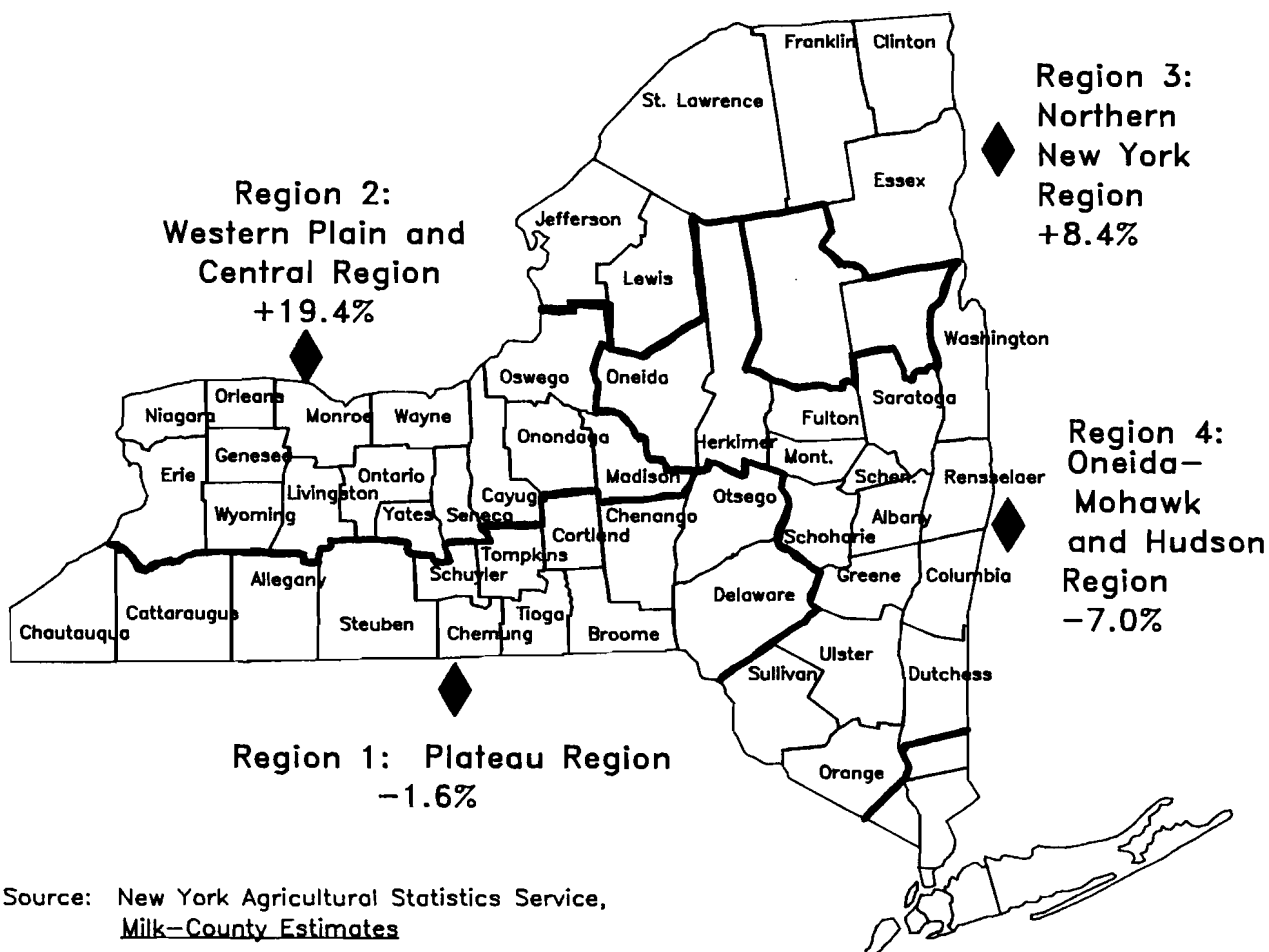


Table 60. MILK PRODUCTION & AVERAGE COST OF PRODUCING MILK  
Four Regions of New York, 1992

Item	Region*			
	1	2	3	4
<u>Milk Production**</u> (million pounds)				
1982	3,301.8	2,986.8	2,034.7	2,749.1
1992	3,248.4	3,564.8	2,206.1	2,555.5
Percent change	-1.6%	+19.4%	+8.4%	-7.0%
<u>Cost of Producing Milk</u> (\$ per hundredweight milk)				
Operating cost	\$10.45	\$10.45	\$9.95	\$10.72
Total cost	15.11	13.58	14.01	15.26
Average price received	13.59	13.53	13.36	13.83
Return per cwt. to operator labor, mgmt. & capital	\$1.61	\$1.84	\$1.97	\$1.79

\*See Figure 2 for region descriptions.

\*\*Source: New York Agricultural Statistics Service, Milk-County Estimates.

Table 61. FARM BUSINESS SUMMARIES FOR SINGLE PROPRIETORSHIPS,  
PARTNERSHIPS, AND CORPORATIONS  
357 New York Dairy Farms, 1992

Item	239 Single Prop.	99 Partnerships	19 Corporations
<u>ACCRUAL EXPENSES</u>			
Hired labor	\$ 33,011	\$ 44,209	\$134,308
Feed	73,692	107,045	221,105
Machinery	25,358	36,929	61,338
Livestock	38,268	57,749	117,532
Crops	14,534	23,655	41,538
Real estate	13,080	25,226	45,538
Other	31,983	47,678	81,410
Total Operating Expenses	\$231,123	\$342,491	\$702,769
Expansion livestock	3,253	7,841	37,442
Machinery depreciation	14,179	19,750	35,075
Building depreciation	7,772	14,086	31,342
Total Accrual Expenses	\$256,327	\$384,168	\$806,628
<u>ACCRUAL RECEIPTS</u>			
Milk sales	\$246,155	\$388,731	\$780,862
Livestock	27,991	39,806	99,052
Crops	6,691	12,141	19,003
All other	6,039	10,731	23,794
Total Accrual Receipts	\$286,876	\$451,409	\$922,711
<u>PROFITABILITY ANALYSIS</u>			
Net farm income (without appreciation)	\$30,549	\$67,241	\$116,083
Net farm income (with appreciation)	\$44,458	\$88,105	\$152,223
Labor & management income	\$5,159	\$33,875	\$56,901
Number of operators	1.05	2.15	2.09
Labor & management income per operator	\$4,913	\$15,756	\$27,225
Return on all capital w/apprec.	5.0%	6.3%	7.1%
<u>FINANCIAL MEASURES</u>			
Percent equity	63%	65%	63%
Debt/asset ratio - long-term	0.40	0.35	0.34
Debt/asset ratio - inter. & current	0.34	0.35	0.41
Farm net worth, end year	\$429,323	\$648,263	\$1,177,509
Change in net worth w/appreciation	\$23,977	\$38,061	\$50,387
Total farm debt per cow	\$2,488	\$2,263	\$2,207
Debt payments made per cow	\$541	\$452	\$406
Cash flow coverage ratio for 1991	0.90	1.20	1.38
<u>BUSINESS FACTORS</u>			
Worker equivalent	3.02	4.32	7.29
Number of cows	97	151	302
Pounds of milk sold per cow	18,593	18,960	19,142
Total tillable acres	286	418	728
Tons hay crop dry matter per acre	2.6	3.0	3.3
Tons corn silage per acre	14.3	15.1	14.1
Cows per worker	32	35	41
Pounds of milk sold per worker	600,814	662,732	791,661
Purc. grain & conc. as % of milk receipts	29%	27%	27%
Average price per cwt. milk	\$13.59	\$13.59	\$13.53
Total cost of producing milk	\$14.65	\$14.09	\$13.62

**Table 62. FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION**  
**50 New York Dairy-Renter Farms,\* 1992**

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
Labor: Hired	\$	15,177	Milk sales		\$196,346
Feed: Dairy grain & conc.		51,242	Dairy cattle		21,116
Dairy roughage		4,538	Dairy calves		3,459
Nondairy		131	Other livestock		560
Machinery: Mach. hire/rent/lease		3,624	Crops		4,436
Mach. repairs/parts		9,564	Government receipts		1,377
Auto expense (farm share)		799	Custom machine work		338
Fuel, oil, grease		5,327	Gas tax refund		142
Livestock: Replacement lvstk.		3,743	Other		1,249
Breeding		3,059	TOTAL ACCRUAL RECEIPTS		\$229,023
Vet & medicine		4,305			
Milk marketing		11,084	<u>PROFITABILITY ANALYSIS</u>		
Cattle lease/rent		281	Net farm inc. (w/o apprec.)		\$38,717
Other livestock expense		11,151	Net farm inc. (w/apprec.)		\$45,509
Crops: Fertilizer & lime		5,096	Labor & mgt. income/farm		\$23,740
Seeds & plants		2,737	Number of operators		1.32
Spray & other crop expense		2,289	Labor & mgt. income/oper.		\$17,985
Real Estate: Land/building/			Rate of return on equity		
fence repair		2,965	capital including apprec.		6.0%
Taxes		1,487			
Rent & lease		16,934	<u>BUSINESS FACTORS</u>		
Other:			Number of cows		79
Insurance		3,070	Number of heifers		58
Telephone (farm share)		660	Worker equivalent		2.50
Electricity (farm share)		5,478	Total tillable acres		213
Interest paid		6,701	Milk sold per cow, lbs.		18,327
Miscellaneous		2,310	Hay DM per acre, tons		2.8
TOTAL OPERATING EXPENSES	\$	173,752	Corn silage per acre, tons		14.4
Expansion livestock		4,215	Milk sold per worker, lbs.		578,077
Machinery depreciation		10,513	Grain/conc. as % milk sales		26%
Building depreciation		1,826	Feed & crop exp./cwt. milk		\$4.57
TOTAL ACCRUAL EXPENSES	\$	190,306	Labor & mach. costs/cow		\$961
			Average price/cwt. milk		\$13.61
<u>ASSETS</u>			<u>LIABILITIES</u>		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
Farm cash/chkg./sav.	\$ 3,322	\$ 3,897	Accounts payable	\$ 4,082	\$ 4,868
Accounts receivable	16,403	15,975	Operating debt	7,309	9,164
Prepaid expenses	11	41	Short-term	1,439	1,883
Feed & supplies	31,688	35,821	Advanced gov't. rec.	0	0
Dairy cows**	80,176	89,206	Intermediate***	67,033	75,445
Heifers	31,346	34,098	Long-term**	3,969	6,179
Bulls & other lvstk.	726	859	Total Farm Liab.	\$ 83,832	\$97,539
Machinery & equip**	84,472	97,972	Nonfarm Liab.****	8,629	8,007
Farm Credit stock	932	1,050	Total Farm & Nonfarm		
Other stock & cert.	7,866	8,068	Liabilities	\$92,461	\$105,546
Land & buildings**	18,352	25,935			
Total Farm Assets	\$275,294	\$312,922	Farm Net Worth	\$191,462	\$215,383
Nonfarm Assets****	75,649	78,685	Farm & Nonfarm		
Total Farm & Nonfarm			Net Worth	\$258,482	\$286,061
Assets	\$350,943	\$391,607			

\*A renter owns no farm real estate at the end of year or no tillable land.

\*\*Includes discounted lease payments. \*\*\*Includes Farm Credit stock and discounted lease payments for cattle and machinery. \*\*\*\*Average of 29 farms reporting.

**Table 63. FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION**  
**Average of 36 Top Ten Percent Farms by Rate of Return on All Capital**  
**(without appreciation), 1992**

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
<u>Labor</u> : Hired	\$112,332		Milk sales	\$718,670	
<u>Feed</u> : Dairy grain & conc.	192,280		Dairy cattle	76,469	
Dairy roughage	7,921		Dairy calves	11,038	
Nondairy	946		Other livestock	2,129	
<u>Machinery</u> : Mach. hire/rent/lease	4,847		Crops	30,055	
Mach. repairs/parts	33,822		Government receipts	6,531	
Auto expense (farm share)	2,734		Custom machine work	1,214	
Fuel, oil, grease	13,709		Gas tax refund	179	
<u>Livestock</u> : Replacement lvstk.	9,800		Other	9,903	
Breeding	6,458		<b>TOTAL ACCRUAL RECEIPTS</b>	<b>\$856,188</b>	
Vet & medicine	17,905		<u>PROFITABILITY ANALYSIS</u>		
Milk marketing	25,983		Net farm inc. (w/o apprec.)	\$172,581	
Cattle lease/rent	947		Net farm inc. (w/apprec.)	\$207,680	
Other livestock expense	34,402		Labor & mgt. income/oper.	\$89,192	
<u>Crops</u> : Fertilizer & lime	14,827		Rate of return on equity		
Seeds & plants	8,302		capital without apprec.	16.4%	
Spray & other crop expense	8,630		Rate of return on all capital		
<u>Real Estate</u> : Land/building/			without appreciation	12.2%	
fence repair	12,850		<u>BUSINESS FACTORS</u>		
Taxes	11,288		Number of cows	258	
Rent & lease	12,306		Number of heifers	189	
<u>Other</u> :			Worker equivalent	6.12	
Insurance	8,181		Total tillable acres	567	
Telephone (farm share)	1,104		Milk sold per cow, lbs.	20,288	
Electricity (farm share)	14,204		Hay DM per acre, tons	3.2	
Interest paid	42,698		Corn silage per acre, tons	15.8	
Miscellaneous	14,942		Milk sold per worker, lbs.	854,727	
<b>TOTAL OPERATING EXPENSES</b>	<b>\$613,418</b>		Grain/conc. as % milk sales	27%	
Expansion livestock	\$ 16,761		Feed & crop exp./cwt. milk	\$4.44	
Machinery depreciation	27,728		Labor & mach. costs/cow	\$901	
Building depreciation	25,700		Average price/cwt. milk	\$13.74	
<b>TOTAL ACCRUAL EXPENSES</b>	<b>\$683,607</b>				
<u>ASSETS</u>			<u>LIABILITIES</u>		
	<u>Jan. 1</u>	<u>Dec. 31</u>		<u>Jan. 1</u>	<u>Dec. 31</u>
Farm cash/chkg./sav. \$	9,005	\$ 10,022	Accounts payable	\$ 15,466	\$ 11,145
Accounts receivable	45,606	52,808	Operating debt	29,196	47,990
Prepaid expenses	3,232	4,163	Short-term	2,890	2,446
Feed & supplies	112,237	141,724	Advanced gov't. rec.	0	0
Dairy cows*	234,618	265,136	Intermediate**	260,198	267,190
Heifers	93,677	106,058	Long-term*	304,204	299,853
Bulls & other lvstk.	1,488	1,916	<b>Total Farm Liab.</b>	<b>\$611,954</b>	<b>\$628,624</b>
Machinery & equip*	211,713	238,583	<b>Nonfarm Liab.***</b>	<b>7,169</b>	<b>6,107</b>
Farm Credit stock	9,167	9,390	<b>Total Farm &amp; Nonfarm</b>		
Other stock & cert.	28,512	31,133	<b>Liabilities</b>	<b>\$619,123</b>	<b>\$634,731</b>
Land & buildings*	590,814	629,243			
<b>Total Farm Assets</b>	<b>\$1,340,069</b>	<b>\$1,490,176</b>	<b>Farm Net Worth</b>	<b>\$728,115</b>	<b>\$861,552</b>
<b>Nonfarm Assets***</b>	<b>101,593</b>	<b>111,621</b>	<b>Farm &amp; Nonfarm</b>		
<b>Total Farm &amp; Nonfarm</b>			<b>Net Worth</b>	<b>\$822,539</b>	<b>\$967,066</b>
<b>Assets</b>	<b>\$1,441,662</b>	<b>\$1,601,797</b>			

\*Includes discounted lease payments. \*\*Includes Farm Credit Stock and discounted lease payments for cattle and machinery. \*\*\* Average of 20 farms reporting.

**Table 64. FARM BUSINESS SUMMARY AND FARM FAMILY FINANCIAL SITUATION**  
**Average of 357 New York Dairy Farms, 1992**

<u>ACCRUAL EXPENSES</u>			<u>ACCRUAL RECEIPTS</u>		
<u>Labor</u> : Hired	\$ 41,508		Milk sales	\$314,150	
<u>Feed</u> : Dairy grain & conc.	87,830		Dairy cattle	28,351	
Dairy roughage	2,553		Dairy calves	5,383	
Nondairy	402		Other livestock	1,314	
<u>Machinery</u> : Mach. hire/rent/lease	3,864		Crops	8,857	
Mach. repairs/parts	17,665		Government receipts	3,840	
Auto expense (farm share)	931		Custom machine work	639	
Fuel, oil, grease	8,023		Gas tax refund	259	
<u>Livestock</u> : Replacement lvstk.	4,937		Other	3,794	
Breeding	4,083		- Non-cash capital transfer	(-) 247	
Vet & medicine	8,083		TOTAL ACCRUAL RECEIPTS	\$366,340	
Milk marketing	14,495		<u>PROFITABILITY ANALYSIS</u>		
Cattle lease/rent	459		Net farm inc. (w/o apprec.)	\$45,274	
Other livestock expense	15,831		Net farm inc. (w/apprec.)	\$62,296	
<u>Crops</u> : Fertilizer & lime	8,661		Labor & mgt. income/farm	\$15,868	
Seeds & plants	4,851		Number of operators	1.41	
Spray & other crop expense	4,818		Labor & mgt. income/oper.	\$11,254	
<u>Real Estate</u> : Land/building/			Rate of return on equity		
fence repair	5,543		capital including apprec.	5.0%	
Taxes	8,150		<u>BUSINESS FACTORS</u>		
Rent & lease	5,455		Number of cows	123	
<u>Other</u> :			Number of heifers	96	
Insurance	5,114		Worker equivalent	3.60	
Telephone (farm share)	783		Total tillable acres	346	
Electricity (farm share)	7,953		Milk sold per cow, lbs.	18,789	
Interest paid	20,396		Hay DM per acre, tons	2.8	
Miscellaneous	4,720		Corn silage per acre, tons	14.5	
TOTAL OPERATING EXPENSES	\$287,108		Milk sold per worker, lbs.	641,893	
Expansion livestock	6,345		Grain/conc. as % milk sales	28%	
Machinery depreciation	16,836		Feed & crop exp./cwt. milk	\$4.70	
Building depreciation	10,777		Labor & mach. costs/cow	\$996	
TOTAL ACCRUAL EXPENSES	\$321,066		Average price/cwt. milk	\$13.58	
<u>ASSETS</u>			<u>LIABILITIES</u>		
	<u>Jan. 1</u>	<u>Dec. 31</u>		<u>Jan. 1</u>	<u>Dec. 31</u>
Farm cash/chkg./sav.	\$ 6,130	\$ 5,722	Accounts payable	\$ 10,130	\$ 11,867
Accounts receivable	24,055	23,369	Operating debt	11,590	13,892
Prepaid expenses	393	657	Short-term	4,407	3,701
Feed & supplies	62,574	69,539	Advanced gov't. rec.	28	18
Dairy cows*	121,711	129,799	Intermediate**	124,114	130,307
Heifers	52,494	55,855	Long-term*	137,651	143,696
Bulls & other lvstk.	1,458	1,548	Total Farm Liab.	\$287,920	\$303,481
Machinery & equip.*	144,623	151,597	Nonfarm Liab.***	3,626	3,681
Farm Credit stock	3,668	3,804	Total Farm & Nonfarm		
Other stock & cert.	9,819	10,677	Liabilities	\$291,546	\$307,162
Land & buildings*	361,566	380,772	Farm Net Worth	\$500,571	\$529,858
Total Farm Assets	788,491	\$833,339	Farm & Nonfarm		
Nonfarm Assets***	72,337	76,401	Net Worth	\$569,322	\$602,578
Total Farm & Nonfarm					
Assets	\$860,868	\$909,740			

\*Includes discounted lease payments. \*\*Includes Farm Credit stock and discounted lease payments for cattle and machinery. \*\*\*Average of 213 farms reporting.



NOTES

APPENDIX

THE ECONOMIC ENVIRONMENT FACING  
NEW YORK DAIRY FARMERS

The prices dairy farmers pay for a given quantity of goods and services has a major influence on farm production costs. The astute manager will keep close watch on unit costs and utilize the most economical goods and services.

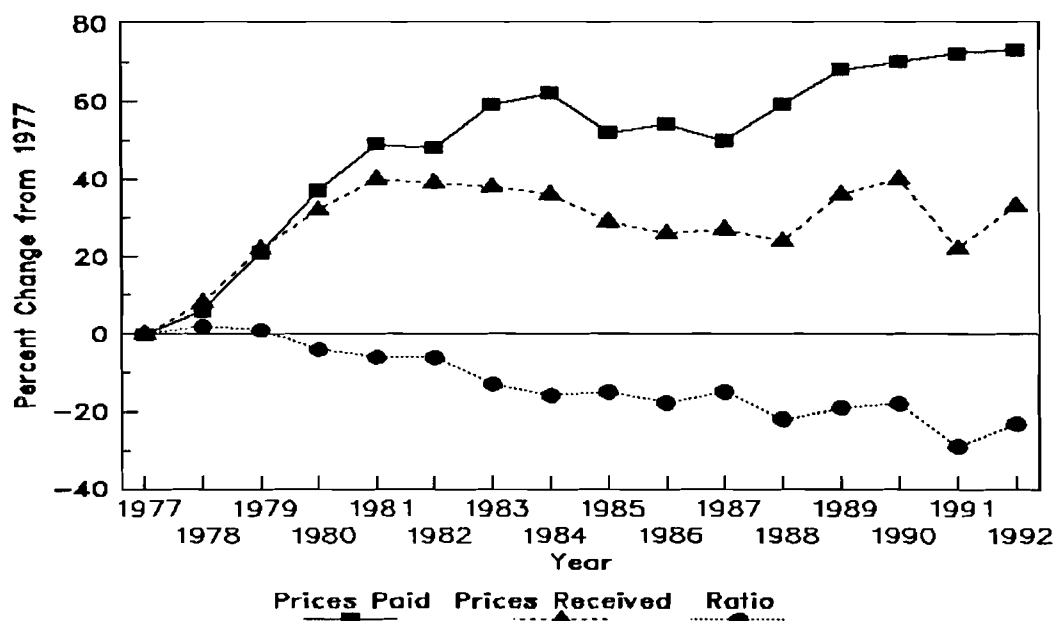
**Table A1. PRICES PAID BY NEW YORK FARMERS FOR SELECTED ITEMS, 1982-1992**

Year	Mixed Dairy Feed 16% Protein (\$/ton)	Fertilizer, Urea, 45-46%N (\$/ton)	Seed Corn, Hybrid* (\$/80,000 kernels)	Diesel Fuel (\$/gal)	Tractor 50-59 PTO* (\$)	Wage Rate All Hired Farm Workers (\$/hr)
1981	193.7	275	60.00	1.310	14,900	3.26
1982	176.6	278	63.70	1.240	16,000	3.26
1983	192.6	249	64.60	1.140	17,200	3.52
1984	194.3	250	70.20	1.140	17,400	3.60
1985	164.2	238	67.30	1.080	16,800	4.01***
1986	162.9	200**	65.60	0.840**	16,550	4.41***
1987	152.8**	190**	64.90	0.765**	16,650	4.60***
1988	180.8**	208**	64.20	0.810**	17,150	5.02***
1989	188.5**	227**	71.40	0.828**	17,350	5.25***
1990	176.8**	215**	69.90	1.080**	17,950	5.51***
1991	171.8**	243**	70.20	0.995**	18,650	6.06***
1992	173.8**	221**	71.80	0.910**	18,850	5.76

SOURCE: NYASS, New York Agricultural Statistics. USDA, ASB, Agricultural Prices. \*United States average. \*\*Northeast region average. \*\*\*New York and New England combined, 1985-1991.

The table above shows average prices of selected goods and services used on New York dairy farms. Chart A1 shows the ratio of prices received for milk and prices paid by New York dairy farmers as a percent change from 1977. The ratio has been on a downward trend since 1978 except for slight increases in 1985, 1987, 1989, 1990 and 1992.

**Chart A1. Ratio of Prices Received for Milk and Prices Paid by New York Dairy Farmers, 1977-1992**



SOURCE: NYASS, New York Agricultural Statistics.

Inflation, farm profitability, supply and demand all have a direct impact on the inventory values on New York dairy farms. The table below shows year-end (December) prices paid for dairy cows (replacements), an index of these cow prices, an index of new machinery prices (U.S. average), the average per acre value of farmland and buildings reported in January (February for 1986-89 and April for 1982-85), and an index of the real estate prices.

**Table A2. VALUES OF NEW YORK DAIRY FARM INVENTORY ITEMS, 1979-1992**

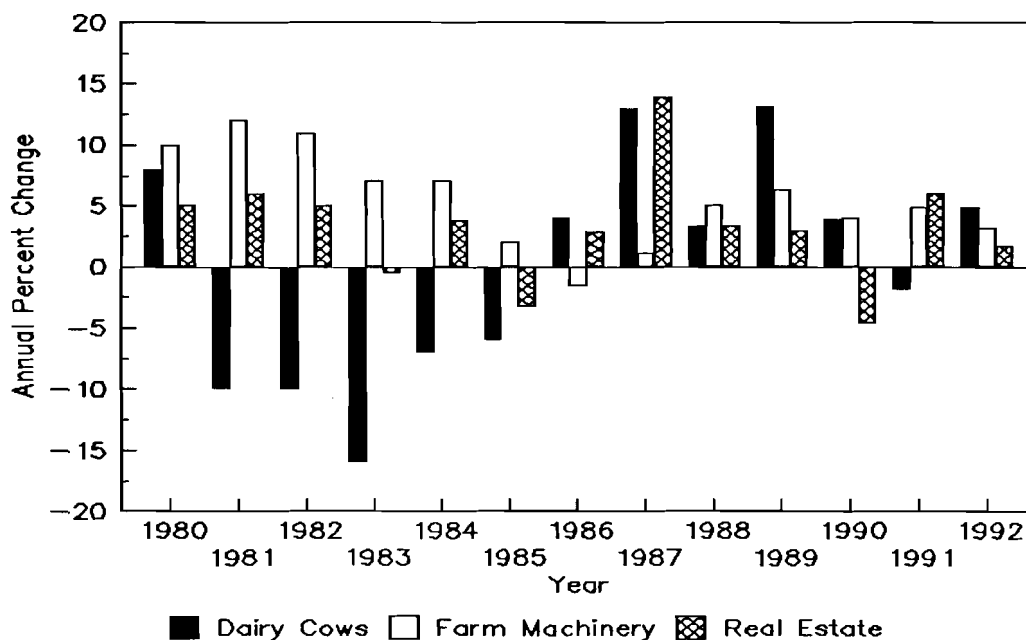
Year	Dairy Cows		Machinery*	Farm Real Estate	
	Value/Head	1977=100		Value/Acre	1977=100
1979	\$1,150	232	121	\$ 670	114
1980	1,240	251	134	720	123
1981	1,120	226	149	773	132
1982	1,010	204	163	821	140
1983	850	172	173	817	139
1984	790	160	181	848	144
1985	740	149	181	820	140
1986	770	156	178	843	144
1987	870	176	180	960	164
1988	900	182	189	993	169
1989	1,020	206	201	1,024	174
1990	1,060	214	209	974	166
1991	1,040	210	219	1,031	176
1992	1,090	220	226	1,051	179

SOURCE: NYCERS, New York Agricultural Statistics and New York Crop and Livestock Report. USDA, ASB, Agricultural Prices.

\*United States average.

Dairy cow prices turned up in 1992 after decreasing in 1991. The December 1992 value per head averaged \$50 higher than in December 1991. New machinery prices have increased since 1977 with a slight decline in 1986. The 1992 machinery prices increased 3.2 percent over the 1991 level. Farm real estate values increased 2 percent in 1992.

**Chart A2. Annual Changes in Dairy Cow, Farm Machinery, and Farm Real Estate Values, New York Dairy Farms, 1979-1992**



## GLOSSARY AND LOCATION OF COMMON TERMS

Accounts Payable - Open accounts or bills owed to feed and supply firms, cattle dealers, veterinarians and other providers of farm services and supplies.

Accounts Receivable - Outstanding receipts from items sold or sales proceeds not yet received such as the payment for December milk sales received in January.

Accrual Accounting - (defined on page 7)

Accrual Expenses - (defined on page 9)

Accrual Receipts - (defined on page 9)

Annual Cash Flow Statement - (defined on page 16)

Appreciation - (defined on page 10)

Asset Turnover Ratio - (defined on page 34)

Available for Debt Service per Cow - Net cash available for debt service after deducting net personal withdrawals for family expenditures, divided by the average number of cows.

Average Top 10% Farms - Average of 36 farms with highest rate of return on all capital (without appreciation).

Balance Sheet - A "snapshot" of the business financial position at a given point in time, usually December 31. The balance sheet equates the value of assets to liabilities plus net worth.

Barn Types - Stanchion: cows are confined in a stall by a stanchion or neck chain. Freestall: cows move at will between open stalls and feeding areas. Combination: both stanchion and freestall barns used.

Business Records - Account Book: any organized farm record book or ledger. Agrifax (mail-in); Farm Credit's recordkeeping service. ELFAC: ELFAC II mail in record service. On-Farm Computer: computerized business and financial records entered and kept on the farm. Other: accountant, recordkeeping association or no organized recordkeeping system.

Capital Efficiency - The amount of capital invested per production unit. Relatively high investments per worker with low to moderate investments per cow imply efficient use of capital. (See analysis, page 34.)

Capital Investment - Commonly used as substitute term for farm capital or total farm assets.

Cash Flow - The movement of money in and out of the business over a given period of time, e.g. one year. (See Annual Cash Flow Statement, page 16)

Cash Flow Coverage Ratio - (defined on page 18)

Cash From Nonfarm Capital Used in the Business - Transfers of money from nonfarm savings or investments to the farm business where it is used to pay operating expenses, make debt payments and/or capital purchases.

Cash Paid - (defined on page 8)

Cash Receipts - (defined on page 9)

Change in Accounts Payable - (defined on page 9)

Change in Accounts Receivable - (defined under Accrual Receipts on page 9)

Change in Advanced Government Receipts - (defined under Accrual Receipts, page 9)

Change in Inventory - (defined on page 8)

Corporation - Business is organized under state corporation law. Corporation is owned, operated, and managed by members of one or more farm families and owner/operators are corporate employees. Corporate accounts are modified to exclude operator wages' and other compensation from operating expenses for DFBS use.

Cost of Producing Milk, Whole Farm Method - A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk. (see page 25)

Current (assets and liabilities) - Farm inventories and operating capital that usually turnover annually, and the debt associated with their growth and maintenance.

Dairy Cash-Crop (farm) - Operating and managing this farm is the full-time occupation of one or more people, cropland is owned but crop sales exceed 10 percent of accrual milk receipts.

Dairy Farm Renter - (dairy-renter) - Farm business owner/operator owns no tillable land and commonly rents all other farm real estate.

Dairy Grain and Concentrate - All grains, protein supplements, milk substitutes, minerals and vitamins purchased and fed to the dairy herd.

Dairy Records: DHIC: Dairy Herd Improvement Cooperative official milk production records. Owner Sampler: weights and samples are taken by farmer but tested by DHIC. Other: all other methods used to obtain periodic production data on individual cows. None: no milk production records on individual cows.

Dairy Roughage - All hay, silage or other fodder purchased and fed to the dairy herd.

Debt Per Cow - Total end-of-year debt divided by end-of-year number of cows.

Debt to Asset Ratios - (defined on page 14)

Dry Matter - The amount or proportion of dry material that remains after all water is removed. Commonly used to measure dry matter percent and tons of dry matter in feed.

Equity Capital - The farm operator/manager's owned capital or farm net worth.

Expansion Livestock - Purchased dairy cattle and other livestock that cause an increase in herd size from the beginning to the end of the year.

Farm Business Chart - (see definition and application on page 36)

Farm Debt Payments as Percent of Milk Sales - Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts. A reliable measure of repayment ability, see pages 18 and 39.

Farm Debt Payments Per Cow - Planned or scheduled debt payments per cow represent the repayment plan scheduled at the beginning of the year divided by the average number of cows for the year. This measure of repayment ability is used in the Financial Analysis Chart on page 39.

Financial Lease - A long-term non-cancellable contract giving the lessee use of an asset in exchange for a series of lease payments. The term of a financial lease usually covers a major portion of the economic life of the asset. The lease is a substitute for purchase. The lessor retains ownership of the asset.

Hay Crop - All hayland, including new seedings, harvested once or more as hay or hay crop silage.

Hay Dry Matter - see Dry Matter

Heifers - Female dairy replacements of all ages.

Hired Labor (expenses) - All wages, nonwage compensation, payroll taxes, benefits, and perquisites paid employees.

Income Statement - A complete and accurate account of farm business receipts and expenses used to measure profitability over a period of time such as one year or one month.

Intermediate (assets and liabilities) - Farm business property and associated debt that is turned over from one to 10 years.

Labor and Management Income - (defined on page 11)

Labor and Management Income Per Operator - (defined on page 11)

Labor Efficiency - Production capacity and output per worker. (See analysis on pages 34 and 35.)

Labor Force - Operator(s): Person or persons that run the farm and make the management decisions. An operator does not have to be a farm owner. Family Paid: all family members, excluding operators, that are paid for working on the farm. Family Unpaid: all family members, excluding the operators, that are not paid for farm work performed.

Liquidity - Ability of business to generate cash to make debt payments or to convert assets to cash.

Long-Term (assets and liabilities) - Farm real estate and associated debt with typical life of 10 or more years.

Milk Marketing (expenses) - Milk hauling fees and charges, co-op dues, milk advertising and promotion expenses.

**Milking Frequency** - 2x/day: all cows were milked two times per day for the entire year. 3x/day: all cows were milked three times per day for the entire year. Other: any combination of 2x, 3x, and more frequent milking.

**Milking Systems** - Bucket and Carry: milk is transferred manually from milking unit to pail to tank. Dumping Station: milk is dumped from milking unit into transfer station and then pumped to tank. Pipeline: milking units are connected directly to milk transfer lines. Herringbone: milking parlor designed to move and milk cows in groups. Other Parlor: parlors in which cows move and are milked individually.

**Net Farm Income** - (defined on page 10)

**Net Worth** - The value of assets less liabilities equal net worth. It is the equity the owner has in owned assets.

**Nondairy Feed** - All grain, concentrates, and roughage purchased and fed to nondairy livestock.

**Nonfarm Noncash Capital** - (defined on page 9)

**Nontillable Pasture** - Permanent or semipermanent pasture land that could not be included in a regular cropping sequence or rotation.

**Operating Costs of Producing Milk** - (defined on page 25)

**Opportunity Cost** - The cost or charge made for using a resource based on its value in its most likely alternative use. The opportunity cost of a farmer's labor and management is the value he/she would receive if employed in his/her most qualified alternative position.

**Other Forage** - All forage crops harvested but not included as hay crops or corn silage, e.g. oats, barley, and sudan grass harvested as roughage.

**Other Livestock Expenses** - All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include; bedding, DHIC, milk house and parlor supplies, livestock board, registration fees and transfers.

**Part-Time Dairy (farm)** - Dairy farming is the primary enterprise, cropland is owned but operating and managing this farm is not a full-time occupation for one or more people.

**Partnership** - Business is owned by two or more individuals who share profits according to their contribution of labor, management, and capital.

**Personal Withdrawals and Family Expenditures Including Nonfarm Debt Payments** - All the money removed from the farm business for personal or nonfarm use including family living expenses, health and life insurance, income taxes, nonfarm debt payments, and investments.

**Prepaid Expenses** - (defined on page 8)

**Profitability** - The return or net income the owner/manager receives for using one or more of his or her resources in the farm business. True "economic profit" is what remains after deducting all costs including the opportunity costs of the owner/manager's labor, management, and equity capital.



Repayment Analysis - An evaluation of the business' ability to make planned debt payments.

Replacement Livestock - Dairy cattle and other livestock purchased to replace those that were culled or sold from the herd during the year.

Return on Equity Capital - (defined on page 12)

Return on Total Capital - (defined on page 12)

Return to Operators' Labor, Management, and Equity Capital - (defined on page 10)

Sole Proprietorship - Business is owned by one individual but there may be more than one operator.

Solvency - The extent or ability of assets to cover or pay liabilities. Debt/asset and leverage ratios are common measures of solvency.

Specialized dairy farm - A farm business where dairy farming is the primary enterprise, operating and managing this farm is a full-time occupation for one or more people and cropland is owned.

Statement of Owner Equity (reconciliation) - (defined on page 15)

Taxes (expenses) - Real estate taxes (school, town, and county). Payroll taxes are included as a hired labor expense. Income and self-employment taxes are a personal expense for all noncorporate taxpayers.

Tillable Acres - All acres that are normally cropped including hayland that is pastured. Acres that are double cropped are counted once.

Tillable Pasture - Hay crop acreage currently used for grazing that could be tilled in a regular cropping sequence.

Total Costs of Producing Milk - (defined on page 25)

Worker Equivalent - The number of full-time workers equivalent to all the full and part-time people working throughout the year. Operator and family labor is included. Worker equivalents are determined by converting all work to full-time months (based on 230 hours per month) and dividing by 12.

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